DISSERTATION ON

"Menstrual Hygiene Practices among Adolescent Girls in Rural and Urban population of Field Practice Area of a Tertiary Care Teaching Hospital, Kancheepuram District, Tamilnadu."

Dissertation submitted to

THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY

In partial fulfilment of the requirement

For the award of degree of

DOCTOR OF MEDICINE IN COMMUNITY MEDICINE

BRANCH - XV

Submitted by

Register Number: 201725401

KARPAGA VINAYAGA INSTITUTE OF MEDICAL SCIENCES
AND RESEARCH CENTRE, MADURANTAKAM



THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY,
CHENNAITAMILNADU

MAY 2020

CERTIFICATE

This is to certify that "Menstrual Hygiene Practices among Adolescent Girls in Rural and Urban population of Field Practice Area of a Tertiary Care Teaching Hospital, Kancheepuram District, Tamilnadu" is abonafide work of Dr. B. KANAGABALA, in partial fulfillment of the requirements for the M.D COMMUNITY MEDICINE (Branch-XV) examination of The Tamil Nadu Dr. M.G.R Medical University to be held on May 2020.

Dr.Roseline Fatima William M.D, D.P.H.

Prof & Head,

Karpaga Vinayaga Institute of

Medical Sciences and Research Centre,

Chinnakolambakkam,

Madurantakam-TK.

Kancheepuram-Dist,

Tamilnadu, PIN:603308

Dr.Sufala Sunil VishwasRao., MD

Principal,

Karpaga Vinayaga Institute of

Medical Sciences and Research Centre,

Chinnakolambakkam,

Madurantakam-TK,

Kancheepuram-Dist,

Tamilnadu. PIN:603308

CERTIFICATE

This is to certify that "Menstrual Hygiene Practices among Adolescent Girls in Rural and Urban population of Field Practice Area of a Tertiary Care Teaching Hospital, Kancheepuram District, Tamilnadu" is a bonafide work of Dr. B. KANAGABALA, in partial fulfillment of the requirements for the M.D COMMUNITY MEDICINE (Branch-XV) examination of The Tamil Nadu Dr. M.G.R Medical University to be held on May 2020.

Dr.Roseline Fatima William M.D, D.P.H.

Head of the Department

Professor and Guide

Department of Community Medicine

Karpaga Vinayaga Institute of

Medical Sciences and Research Centre,

Chinnakolambakkam, Madurantakam-TK,

Kancheepuram-Dist, Tamilnadu.

PIN:603308

DECLARATION

I, Dr. B. KANAGABALA hereby declare that this dissertation "Menstrual Hygiene Practices among Adolescent Girls in Rural and Urban population of Field Practice Area of a Tertiary Care Teaching Hospital, Kancheepuram District, Tamilnadu" is a presentation of my own work and that it has not been submitted anywhere for any award. Wherever contribution of others are involved, every effort is made to indicate this clearly, with due reference to literature and discussions. This work was done under the guidance of Professor Dr. Roseline Fatima William, MD, D.P.H., at Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Madurantakam.

Candidate's Name : Dr. B. KANAGABALA

Candidate's signature :

Date :

In the capacity as guide for the candidate's dissertation work, I certify that the above statements are true to the best of my knowledge.

Dr. Roseline Fatima William, M.D, D.P.H.

Head of Department,

Professor and Guide, Department of Community Medicine,
Karpaga Vinayaga Institute of Medical, Sciences and Research Centre,
Madurantakam.

ACKNOWLEDGEMENT

At the outset I would like to express my sincere and heartfelt gratitude to my esteemed guide **Dr. ROSELINE FATIMA WILLIAM, M.D., DPH.,**Professor & Head, Department Of Community Medicine, Karpaga Vinayaga Institute of Medical Sciences and Research Centre for her continuous encouragement, moral support and valuable guidance from the inception to the successful completion of this study.

I am extremely thankful to the respected Managing Director **Dr. R. ANNAMALAI M.S., M.Ch.,** Principal **Dr. SUFALA SUNIL VISHWAS RAO, M.D.,** Karpaga Vinayaga Institute of Medical Sciences and Research

Centre for extending their valuable supportin conducting this study.

I express my sincere gratitude to **Dr. THIRUNAAUKARASU**, **M.D.**, for his constant motivation and valuable suggestions from time to time for the completion of this study.

I also extend my gratitude to my mentor, **Dr. Vidya D.C., M.D.,**Assistant Professorand **Dr. Geetha M.D.,** Associate Professor, Community
Medicine for helping me from time to time motivating me always.

I thank **Ms. H. Gladius Jennifer**, Assistant Professor, Biostatistics, for her continuous support and guidance from the beginning till the completion of this study.

I also thank **Dr. Prasan Norman, M.D.,** and **Dr. Karthikeyan M.D.,**Assistant Professor, Community Medicine for extending their support from time to time.

I would like to thank **Dr. Archana Lakshmi M.D., Dr. Ramya M.R., Dr. Lakshmi M.D.,** for their support.

And, I thank **Dr. K.Gopinath** and **Dr. Princy Felicia**, Post Graduates of Community Medicine for helping me whenever needed.

I would also express my heartfelt thanks to the adolescent girls and their mothers in the field practice areas and the staff of Rural and Urban Health and Training Centre, KIMS&RC for their help in data collection.

Above all I thank my parents Mr. K. Balasubramanian and Mrs. P. Malathi, my siblings Kanaga Prabha, Arun and my cousin Sasitharan for all their efforts in supporting me.

TABLE OF CONTENTS

Chapter No	Title	Page No
1.	TITLE	01
2.	INTRODUCTION	03
3.	OBJECTIVES	09
4.	REVIEW OF LITERATURE	11
5.	MATERIALS AND METHODS	55
6.	RESULTS	60
7.	DISCUSSION	92
8.	SUMMARY	102
9.	CONCLUSION	105
10.	REFERENCES	107
11	ANNEXURES	118
	1. PLAGIARISM ANALYSIS REPORT	119
	2. PLAGIARISM CERTIFICATE	122
	3. IEC APPROVAL CERTIFICATE	123
	4. DATA COLLECTION PHOTO	124
	5. QUESTIONNAIRE	125
	6. CONSENT FORM	130
	7. MASTER CHART	131
	8. KEY TO MASTER CHART	143

LIST OF TABLES

Table No.	Title of the table	Page No.
1.	Distribution based on educational status of the	62
	study participants and their parents	
2.	Distribution of study participants based on	63
	religion and socio economic status	
3.	Distribution of study participants according to	64
	socio demographic profile	
4.	Awareness of adolescent girls about	67
	menstruation before menarche	
5.	Awareness on ideal age and cause of	69
	menstruation among study participants	
6.	Awareness of adolescent girls about source,	70
	frequency and occurrence of menstruation during	
	pregnancy	
7.	Comparison of overall knowledge about	72
	menstruation in rural and urban areas	
8.	Attitude of adolescent girls towards menarche	73
9.	Comparison of overall attitude score towards	74
	menstruation in rural and urban areas	
10.	Pattern of menstruation among study participants	75

11.	Premenstrual/ Menstrual symptoms experienced by study participants	77
12.	Menstrual hygiene practices among adolescent girls	79
13.	Menstrual practice score among the study participants	82
14.	School absenteeism during menstruation among the adolescent girls	83
15.	Changing pads at school by the adolescent girls	85
16.	Restrictions practiced during menstruation in rural and urban areas	86
17.	Food restrictions practiced by adolescent girls during menstruation	88
18.	Association of religion with restrictions practiced	89
19.	Association of knowledge with menstrual hygiene practice	90
20.	Association of attitude with practice	91

LIST OF FIGURES

Figure No.	Title of figures	Page No.
1.	Age distribution of the study participants	61
2.	Distribution of study participants based on age at menarche	66
3.	Source of information about menarche among study participants	68
4.	Number of days of menstruation among adolescent girls	76
5.	Types of Premenstrual /menstrual problems experienced by study participants	78
6.	Frequency of changing pads per day	80
7.	Methods of disposal of absorbent materials	81
8.	Reasons for school absenteeism	84
9.	Types of restrictions practiced by adolescent girls	87

LIST OF ABBREVIATIONS

МНМ	Menstrual Hygiene Management
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
UN	United Nations
MDG	Millennium Development Goals
SDG	Sustainable Development Goals
RTI	Reproductive Tract Infections
NTT	Nusa Tenggara Timur
PMS	Premenstrual syndrome

1.TITLE

Menstrual Hygiene Practices among Adolescent Girls in
Rural and Urban population of Field Practice Area of a
Tertiary Care Teaching Hospital, Kancheepuram District,
Tamilnadu

CHAPTER 2 INTRODUCTION



2. INTRODUCTION

According to the World Health Organization, adolescents are individuals between 10 and 19 years of age¹. Globally there are 1.2 billion adolescents. In India, adolescents contribute to 20% of the population². They are the large and growing segment of a population.

Adolescence is a period of physiological, psychological and social transition from childhood to adulthood. It is the time when they become independent, establish new relationships, develop social skills and learn new behavior that will last for the rest of their lives³. The psychological transition from childhood to adulthood brings about changes in the attitude, perceptions and behavior in these adolescents. These changes create a distance between adolescents and their parents and teachers, causing a breakdown in communication⁴. This is a fascinating, yet, crucial, stressful period in an individual's life which requires special attention. According to the reports of the working group on adolescents for tenth five year plan, adolescents are often a neglected group because of the relatively low morbidity and mortality rates of this age group⁵.

Adolescence is characterized by puberty and onset of menstruation in girls. Menstruation is a major stage where a woman undergoes certain reproductive changes from onset of menstruation- menarche (11-15 years)⁶ till menopause (40-51 years)⁷. Girls can attain menarche at the age of eight years also². Women spend on an average 3000 days of their life menstruating⁸.

UNICEF reports that roughly half of the female population –around 26% of the global population are of reproductive age and majority menstruate each month⁹. Menstruation is derived from the Latin word "mensis" meaning month. It is the periodic vaginal bleeding that occurs with the shedding of the uterine mucosa. Menstruation occurs one or two years after the appearance of secondary sexual characteristics. The average cycle is 28 days, ranging from 21 days to 35 days. Every mature female menstruates on the average 3-5 days (ranges 2 days-7 days) each month until menopause¹⁰. The amount and the length of menstrual bleeding vary for individuals.

Menstrual hygiene deals with the special health care needs and requirements of women during menstrual cycle. Menstrual hygiene Management (MHM) was defined by UNICEF as 'women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of menstrual period, using soap and water for washing the body as required and having access to facilities to dispose of used menstrual management materials¹¹. Use of sanitary pads and adequate washing of the genital area are the good hygienic practices which are essential during menstruation which can protect the health in the long run. It is reported that menstrual hygiene management will contribute to universal education (Millennium Development Goals-2) and gender equality (MDG-3, SDG-5)^{8, 12}. Poor personal hygiene and unsafe sanitary conditions during menstruation increase susceptibility to reproductive tract infections (RTI) and gynecological problems¹³. If these infections are left

untreated, several consequences like infertility, ectopic pregnancy, fetal wastage, prenatal infection, low birth weight babies and toxic shock syndrome results¹⁴.

Most adolescent girls in India have little knowledge on menstruation, reproduction and sexuality. 50% of girls aged 12-15 years do not know about menstruation. This is true for rural as well as the urban poor¹⁵. A study from the UNICEF reports 1 out of 3 girls in South Asia are not aware of menstruation prior to attaining it. Forty eight percent of girls in Iran and ten percent of girls in India believe that menstruation is a disease¹⁶.

Though menarche is celebrated in many parts of India, cultural taboos exist which regularly limit girls from activities during menstruation, including religious restrictions, and freedom to leave the house. Many adolescent girls today live in communities where traditional beliefs run counter to, and prevent them from adopting what is generally considered good menstrual hygiene practices. Menstruation is surrounded by various psychological and religious barriers due to lack of knowledge about the process. Although menstruation is a natural process, it is still regarded as unclean in Indian society¹³. It is believed that menstruation contaminates the body and makes it unholy. This is linked with several perceptions and practices which may result in adverse health outcomes. Many adolescents and their mothers believe that certain food (jiggery, papaya) has to be avoided during menstruation. Most of these foods

are rich in iron. Bleeding and avoidance of foods can contribute to iron deficiency anemia in adolescent girls¹⁷.

Effective management of menstrual bleeding requires access to information and education on the safe practices of menstrual hygiene. Teaching a girl about menstrual hygiene during adolescence is a vital aspect of health education as patterns that are developed in adolescence are likely to persist into adult life.

Without correct understanding, menstruation can be distressing for a girl. Discussing this to a girl is important because the inaccurate and inadequate knowledge she acquires from peers and family members leads to a vicious cycle of misinformation. It is also reported that many adolescent girls in low and middle income countries lack appropriate support and facilities in school to manage menstruation¹⁸. A girls' response to the event of menarche depends on the manner in which she learns about menstruation. Isolations and restrictions imposed on the girl are expected to create negative attitude toward menstruation¹³.

The government of India started a scheme of making available subsidized sanitary napkins to adolescent girls in rural part of India since August 2011⁶. However it is not uncommon to see girls using and reusing clothes. In a report in WHO on coming of age: adolescent health, it is reported that adolescent health is a smart investment as it will not only improve the

survival in the short term but also bring benefits for the future health as adults, and for the next generation to come³.

A vast information gap exists among adolescent girls living in rural and urban areas regarding awareness about menstruation and menstrual hygiene which have impact on menstrual hygiene practices. Since there are very few studies which study and compare the menstrual hygiene practices in rural and urban areas, this study was attempted.

CHAPTER 3 OBJECTIVES



3. OBJECTIVES

- To assess the menstrual hygiene practices among adolescent girls in rural and urban field practice area of a tertiary care teaching hospital, Kancheepuram district, Tamilnadu.
- To compare the menstrual hygiene practices among adolescent girls in rural and urban field practice area of a tertiary care teaching hospital, Kancheepuram district, Tamilnadu.

CHAPTER 4 REVIEW OF LITERATURE



4. REVIEW OF LITERATURE

4.1. Adolescence:

Adolescence is derived from Latin word Adolescere- to grow up¹⁹. WHO reports adolescence as the period between 10 -19 years of age ¹. Adolescent period is categorized as early adolescence and late adolescence. Early adolescence includes 10-14 years. During this period physical changes begin with growth spurt and development of the sex organs and secondary sexual characteristics. The next, 15-19 years of age constitutes late adolescence period. The major physical changes have occurred by now and the psychological changes develop during this period². Adolescence in girls is a special period which signifies the transition from girlhood to woman. It is the period of psychological and physical preparation for safe motherhood.

4.2 Global report:

According to UNICEF report, there are around 1.2 billion adolescents globally; 9 out of 10 among these live in developing countries and one in every 6 adolescents is from the least developed countries with South East Asia and Pacific region contributing to more than half the world's adolescents. Adolescents account for only 12 per cent of population in the industrialized countries, whereas in sub-Saharan Africa, South Asia and the least developed countries they account for more than 1 in every 5 inhabitants².

4.3. Indian scenario:

According to UNICEF's report on 'The state of the world's children 2011', there were 243 million adolescents in India, comprising 20% of the population. India has the largest national population of 243 million adolescents, followed by China with 207 million, United States with 44 million, Indonesia and Pakistan (both 41 million)². According to Youth Info Tamil Nadu, there are 6.4million adolescent boys and 6 million adolescent girls in Tamil Nadu²⁰.

4.4 Menstruation:

Menstruation is defined as "the cyclic, hormonally generated sloughing of the uterine endometrium, which occurs between puberty and menopause and is accompanied by bloody vaginal discharge". It may last anywhere from 21 days to 35 days with an average duration of 28 days. A female's menstrual cycle occurs to allow for oocyte release and prepare the uterus for possible pregnancy.

4. 5. Menstruation hygiene –global context:

4.5.1. Age at menarche:

Abdelmoty HI (2015) in a study among adolescent girls aged 11-19 years in Egyptian school reported that 92 % of the girls attained menarche by the age of 15 years and the mean age of menarche was 12.49± 1.20 years with a range of 8 to16 years²². In a study conducted by Davis J et al (funded by UNICEF Indonesia), conducted among girls studying in grades 7 to 12 in 16 schools in four provinces of Indonesia, it was found that average age of

menarche was 12.4 years (95% CI = 12.1–12.6)². Similarly, Rigon F (2012) in a study among Caucasian adolescent girls aged 13-21 years studying in secondary schools in 16 Italian cities found that, the mean age at menarche was 12.4 ±1.3 years with the median age at 12.4 years²⁴. Kazama M et al (2015) in a study among 1018 girls aged 12 to 15 years in 28 schools in Japan reported that, the mean age at menarche was 12.1±1 years²⁵. In a study conducted by Ali TS et al (2010) among adolescent girls aged 13-19 years in Karachi, Pakistan, 88.2% of girls in private school, 83.8% of girls in government school and 82.8% girls in community attained menarche at 12-14 years¹⁷. Alosaimi JA (2014) in a study among adolescent girls aged 11-18 years studying in 9 schools (6 government and 3 private schools) in Taif city in Saudi Arabia, reported that the age at menarche ranged between 11-15 years with the median age at menarche being 13 years²⁶.

Ramathuba DU (2015) in a study at South Africa among adolescent girls aged 14-19 years reported that, 73% of the girls attained menarche at 13–14 years of age, 12% girls attained menarche between 11 and 12 years, and only 2% at an earlier age. The mean age at menarche was 13 years²⁷. Fehintola FO et al (2017) in a study among girls studying in four public secondary schools in Nigeria reported that, the mean age at menarche was 12.5 years²⁸. Siabani S et al (2018) in their study conducted among school girls studying 7^{th} to 10^{th} class (aged 12-16 years) in Iran reported that in 94.0 % of girls, the age of menarche was between 10 to 14 years with the mean of 12.54 ± 1.01 years²⁹. In all these studies, the mean age at menarche was reported to be around 12 years.

4.5.2. Awareness about menstruation before menarche:

Alosaimi JA (2014) in a study among Saudi Arabian girls reported that 76.5% of the girls were informed about menstruation before attaining puberty and 19.5% shortly after attaining puberty²⁶. Similarly, Ramathuba DU (2015) in a study conducted among adolescent school girls at South Africa found that 73% of the respondents have received information regarding menstruation²⁷; Siabani et al (2018) reported that 78% of the school girls in Iran were aware of menstruation before its onset²⁹. Upashe SP et al (2015) in a study among high school girls (studying 9th and 10th grade) in Ethiopia found that 79.3 % of the girls knew about menstruation before attaining menarche³⁰. On the contrary, Fehintola FO et al (2017) in Nigerian girls observed that 96.42% of the respondents had heard about menarche before menstruation²⁸. Ali TS et al (2010) at Pakistan reported that 34.1% of the private school girls, 47.8% of the girls in government schools and 38.8% of the girls in community were aware about menstrual cycles before menarche¹⁷, whereas among Bangladeshi adolescent school girls, Alam MU et al (2017) reported that 64% of girls had no knowledge of menstruation before attaining menarche³⁵. The overall awareness about menstruation before menarche among adolescent girls ranged from 30%-97% in studies done at different countries.

4.5.3. Source of information about menstruation:

Ali TS et al (2009) among Pakistani girls reported that mothers were the source of information among 37.9%, 29.4% and 21.1% of the girls in private schools, government schools and community respectively. Among 27.5% of

the girls in private school, 35.5% of the girls in government schools and 49.7% of the girls in community, elder sister were the source of information before menarche, which was followed by friends (20.9%, 21.8%, 15.2%) and aunt (6.5%, 11.8%, 14.1%)¹⁷. Also, in South Africa, Ramathuba DU report that 34% girls received information from parents, school (30%), peers (19%), magazines (6%) and other sources like sisters (11%) ²⁷. Similarly, Fehintola FO et al in Nigeria reported that mothers were the main source of information among 41.83% of the respondents²⁸. Siabani S in Iran report that mothers were the main source of information for 37.4% of school girls, followed by teachers (16.1%), and friends/peers (14.8%) ²⁹. In contrast, Upashe SP et al in Ethiopia, revealed that, 67.8% of the girls received information about menstruation from friends, followed by mass media (57%), teachers (50.4%), mothers (35.1%) and books (17.9%) 30. In a study among Lebanese girls, Santina T, reported that 95.4% of the girls received information regarding menstruation from a number of sources simultaneously; mother was the principal source (86.9%), followed by school (65.0%), friends (33.2%), older sister (21.6%), television (12.9%), health care professionals (12.3%), and grandmother (11.6%). 54.0% expressed their interest in receiving further information regarding correct menstrual hygiene³³ while in Bangladesh, Alam MU reported that 26% of girls received information from their female relatives and <1% from their teachers³⁵. Mothers were the most common source of information about menstruation among adolescent girls reported in studies conducted at different countries.

4.5.4. Knowledge on menstruation:

Upashe SP et al (2015), reported that 60.9% of the high school girls in Ethiopia had good knowledge about menstruation and its hygiene; 76.9% girls were aware that menstruation was a physiological process, 62.9% were aware that menstruation was caused by hormones; 60.9 % girls were aware that the source of the menstrual blood was uterus³⁰. Davis J et al (2018) in their study among girls studying 7th to 12th grade in four provinces of Indonesia reported that, all girls had heard of disposable sanitary pad and girls had an average score of 9.2 ±2.4 from 15 true/false questions on menstrual-related knowledge²³. Ali TS et al in Pakistan revealed that the adolescents going to government schools were the most informed (47%), and the percentage of informed girls going to private school (34%) was less than the girls not going to school (39%). Regarding the origin of bleeding, 37% girls from private school, 15.9% girls from government school and 19.7% girls from community reported that it comes from the uterus¹⁷. In South Africa, Ramathuba DU (2015) reported that 27% of the secondary school girls were aware of the physical changes related to menarche, 94% about the social and religious restrictions, 48% about hygienic practices and 98% about the use of absorptive materials. About the cause, 15% reported that menstruation is the removal of dirt from the abdomen and stomach; 67% reported that uterus as the source of menstruation, 11% as abdomen and 5% as stomach²⁷. Fehintola FO et al (2017) in Nigeria reported that 38.93% said it was caused by hormones. The source of menstrual blood was vagina (44.74%), uterus (22.37%), bladder (17.89%) and

abdomen (14.98%). It was also reported that 55.92% of the school girls had good knowledge about menstruation and menstrual hygiene²⁸. Siabani S et al (2018) among school girls in Iran reported that 41.2% girls were aware of menstruation as a physiological process, 2.1% described menstruation was for cleansing women's womb. It was also mentioned that 63.7% had poor knowledge on menstruation and only 1.6% had a good knowledge²⁹. Adhikari P et al in Nepal (2007) reported that 36.7% girls knew that menstruation was due to hormones and 25.3% knew that uterus was the source of bleeding³². In Bangladesh, Haque SE et al in their study done among school girls aged 11-16 years, reports, 67.1% of the girls knew how long a normal menstrual cycle lasted (between 21 and 35 days), 68.3% knew that poor menstrual hygiene can predispose to infection, and 77.4% were aware that hygienic practices during menstruation can prevent menstrual pain³⁴. In a study conducted among Nepal school girls by Yadav RN, it was reported that 6.2% girls had poor knowledge, 67.4% girls had fair knowledge and 26.4% had good knowledge on menstrual hygiene management; 83% of the girls were aware that menstruation is a physiological process, 44% of the respondents were aware of the age of menarche and 70% were aware of the age at menopause, 90% were aware of the reason to use sanitary napkins, 97% of girls were aware of the reason for washing hands after handling used pads and 98.9% knew about the proper disposal of used pads³⁶. These studies reveal that knowledge about menstruation among adolescent girls was not adequate and need to be increased.

4.5.5. Attitude towards menstruation:

In Ethiopia, Upashe SP et al (2015) revealed that 9.7% of the high school girls believed that menstruation was a curse from God³⁰. Davis J et al (2018) in Indonesia revealed that less than 5% of girls in most provinces reported that family and community celebrate a girl attaining menarche, except in South Sulawesi, where 37.5% girls reported that community and family celebrate menarche. In South Sulawesi and Papua, East Java and Nusa Tenggara Timur (NTT), 31.1%, 32.2%, 16.3% and 19.3% respectively believed that the community considers it shameful or a taboo to discuss menstruation. Also 10.9% girls in Papua, 9.5% girls in Java, 2.5% girls in NTT and 34.1% girls in South Sulawesi reported that a menstruating girl was considered unclean by the community. In contrast, 21% girls believed that it was false that girls are unclean during menstruation²³. Ali TS et al (2010) in Pakistan reported that 19.3% of girls in private schools and government schools and 18.8% of the girls in the community perceived menstruation as a natural phenomena¹⁷. Alosaimi JA in a study among adolescent girls in Saudi Arabia revealed that 38.9% had negative attitude towards biological changes that occurs during puberty²⁶. Among secondary high school girls in Nigeria, Fehintola FO et al (2017) found that 40.27% of the girls reported menstruation as a physiological process and 58.39% perceived as a pathological process²⁸. While Siabani S et al in a study at Iran found that 1.6% of girls perceived menstruation as an evil or a bad punishment from gods²⁹. In Nepal, Adhikari P et al reported that 70.7% of the girls believed that they should not go to school during menstruation, 87.3% felt that girls should sleep in separate room; all the girls believed that one should not cook food during menstruation³². It can be observed from these studies that the adolescent girls were of the view that menstruation was a pathological process, curse from God, taboo and also believed that they should practice restrictions during menstruation.

4.5.6. Menstrual pattern:

Abdelmoty HI (2015) in a study among school girls aged 11-19 years in a city in Egypt, reported that 66% of the girls had regular menses; 57 % of the girls had menstrual cycle length ranging from 21 to 35 days with a mean of 27.10±1.58 days; the mean duration of menstrual bleeding was 5.0±1.50 days with a range of 2–8 days²². Rigon F (2012) among Italian girls in 2012 found that, 3% of the girls had menstruation of intervals less than 21 days, 3.4% had intervals of more than 35 days. Regarding the regularity of menstrual cycles, 9% of the girls reported that the length was currently irregular, whereas about 72% girls had irregular cycles in the past; 3.2% of the girls reported having short bleeding periods (<4 days) whereas 19% girls had long periods (>6 days)²⁴. Wijesiri HS (2013) reported that, 79% of the adolescent girls in an urban school in Sri Lanka were having regular menstruation³¹. Ali TS et al (2010) reported that among adolescent school girls in Pakistan, 70% of the girls had normal menstrual flow, whereas 16% girls from private schools, 17% girls from government schools and 21% from the community had heavy menstrual flow¹⁷.

4.5.7. Problems during menstruation:

Abdelmoty HI et al (2015) in a study among Egyptian girls reported that dysmenorrhea was the most common menstrual disorder (93%), followed by PMS (65%), and abnormal cycle lengths (43%); 16.6% of the girls reported spotting in between periods and 9.2% reported blood clots. Fatigue, mastalgia and mood disturbance before or during menstruation were the most frequently reported PMS symptoms among 68%, 56 %, 55 % girls respectively²². In a study among Italian girls, Rigon F report that 34% had previous experience of polymenorrhea and 51% had previous experiences of oligomenorrhea. Menstruation-related severe abdominal pain was experienced by 56% of girls and among them, 42% took medications to relieve pain and 11% experienced limitations in normal activities²⁴. Kazama M et al (2015) reported that among Japanese girls, the prevalence of moderate to severe dysmenorrhea was 46.8%, and severe dysmenorrhea was 17.7% and the prevalence increased with age (31.6% in girls aged 12 year, 39.5% in 13 year olds, 50.3% in 14 year olds, and 55% in 15 year old girls) ²⁵. Alosaimi JA in a study among school girls in Saudi Arabia reported that abdominal pain (57.6%) was the most common complaint followed by headache (15.9%), vomiting (9%) and abdominal distention (8.5%). The dysmenorrhea lasted for less than 4 days in 70.7% of the girls. Mood changes were experienced by 53.4% and breast congestion by 16.5% of the girls²⁶. Fehintola FO et al. in their study reported that 73.83% of the girls from Nigeria had menstrual symptoms; abdominal pains and anorexia were the most common symptoms experienced during menstruation²⁸. Wijesiri HS

(2013) at Sri Lanka reports, 84% suffered from dysmenorrhea; 59% experienced moderate pain and 14% experienced severe pain, 84% experienced physical discomfort, 20% experienced restlessness and 19% experienced stress³¹. Haque SE et al in Bangladesh reported that 61.5% and 4.6% of adolescents experienced abdominal pain, and nausea with vomiting, respectively³⁴.

4.5.8. Practice on menstrual hygiene:

In a study conducted by Abdelmoty HI (2015) among Egyptian girls it was reported that, 78.8 % girls used sanitary pads and 21.1% used other items such as tissue paper or towels/cloth. About 43.7% girls reported changing pads or towels twice, 38.5% changed three times and 17.6% changed four times a day²². In Indonesia, Davis J et al reported that 98.3% of girls were using commercial disposable sanitary pads and 6.6% of girls were using reusable cloths during their last period. About 56.6% changed menstrual material every 4–8 hours; 94.6% girls washed their genitals daily. Of the girls who reported reusing menstrual materials, 71% washed the materials with soap and water and 85.2% dried the materials in sunlight. The most common methods of disposing the used materials were using a bin or landfill (54.4%) and burying (23.2%) ²³. In a study conducted by Ali TS et al at Pakistan, 33.5%, 16.4% and 13% of the girls from private schools, government schools and community respectively used sanitary napkins; 50% of the girls in private schools, 62.6% of the girls in government schools and 70.4% of the girls in community used old clothes. Only around 30% of the girls in these three groups dried their

clothes in sunlight others were drying in hidden places¹⁷. Alosaimi JA (2014) in Saudi Arabia reported that 39.5% of the school girls continued to perform physical exercises during the menstrual days, 11.4% did not shower during menstruation and 29.4% were eating specific diet during menstruation²⁶. Ramathuba DU in a study in South Africa reported that 37% of the girls were using sanitary pads, 55% girls used cloth, newspaper (2%) and hand towels (26%); 95% of the girls changed the pads twice daily. Also reported that 58% bathed once daily and 48% bathed twice during menstruation. About the method of disposing, 63% used the pit toilet, 33% used refuse bins and 3% flushed the sanitary pads²⁷. In a study done by Fehintola FO et al (2017) at Nigeria among school girls, 47% of respondents used rag/used cloth, 32.89% used toilet roll and only 20.36% used sanitary pads as absorbent material; 55% of respondents changed the absorbent once a day and 19% changed the materials three or more times. For the disposal of used material, 52.1% disposed in the toilet and only 50% wrapped the used pad before disposing. Overall 74.72% of girls had poor practice while only 25% had good practice²⁸. Siabani S et al (2018) in Iran reported that 81% of the girls followed poor practice on menstrual hygiene²⁹. In a study among Egyptian girls done by Upashe SP (2015), it was reported that 39.9% of the girls had good practice on menstrual hygiene; 82.2% of girls were using absorbent material during menstruation and 66.2% of girls were using commercial sanitary pads. Out of 157 girls who were using clothes, 52.9% washed the clothes with soap and water and 45.2% dried the washed clothes in sunlight. The frequency of

changing the absorbent materials was \geq three times per day among 51.9% of girls. Regarding the disposal of used absorbent materials, 20.2% of the girls disposed in dustbin while 33.3% of girls dispose the pads by wrapping in a paper. About the hygiene, 67% of girls took bath daily during menstruation and 83.5% of the girls cleaned their external genitalia with soap and water during menstruation³⁰. Adhikari et al (2005) in Nepal report that 98% of the girls used old clothes and 2% used special pads. All the girls (100%), did not cook food and eat their food on the same place during periods; 92% did not sleep in their house at the time of menarche. Only 18% cleaned their genitalia during menstruation and only 11.3% used soap for cleaning ³². Among the school girls in Bangladesh, Alam MU (2017) in the study reported that 86% girls used cloth and 10% used disposable pads during menstruation. The usage of disposable pads was higher among girls attending urban schools (21%) than those attending rural schools (9%) 35. Yadav RN et al (2017) in a study among adolescent girls studying in class 7 and 8 in 11 schools in Nepal reported that 40% of the girls had good menstrual hygiene practices; 51% girls followed fair practice and 9% followed poor menstrual hygiene practices³⁶. Although there are differences in the practice reported among different countries, the percentage of girls following good menstrual hygiene practices is very low.

4.5.9. Absenteeism in school:

In a study in Egypt, Abdelmoty HI et al it was reported that menstrual disorders prevented 7.7% from attending school with the mean duration of school absenteeism being 1.5±1.2 days. Dysmenorrhea (61%) was reason for

the highest rate of school absenteeism followed by PMS (38 %) ²². Among school girls in Saudi Arabia, Alosaimi JA reported that 27.2% were absent from school during the menstrual days²⁶. Fehontola FO in a study among Nigerian girls reports that, 80% of the girls attended school during menstruation and the remaining were absent from school. The reasons for absenteeism were lack of water in school (56.25%) and lack of disposal facilities (42.5%) ²⁸. Wijesiri HS reported that among school girls in Sri Lanka reported that, absenteeism from school due to pain during menstruation was 44%³¹. Haque SE et al (2014) reported that 7.7% of the Bangladeshi girls did not attend school during menstruation³⁴. In a study among Bangladesh girls by Alam MU, 32% of the girls stated that menstrual problems interfered with school performance; 41% of girls missed school during menstruation (42% in rural schools and 38% in urban schools) and absentee girls reported that they missed an average of 2.8 days each menstrual cycle that is 16% of the academic year. The reasons were 59% revealed that they felt uncomfortable sitting beside boys, 31% felt embarrassed at school during menstruation, 5% reported that there were no place to change menstrual materials in school and 4% revealed their guardians forbade them to go to school ³⁵. Boosey R (2014) in their study among school girls in Uganda reported that menstruation related absenteeism was reported by 61.7% of adolescents. The main reasons were lack of a private place to wash and change at school (63.8%), followed by fear of staining their clothes (59.4%), discomfort from bloating and tiredness (55.1%), and pain $(51.4\%)^{37}$.

4.5.10. Restrictions faced during menstruation:

Fehintola FO in a study among school girls in Nigeria reports, 45.75% of the girls experienced restrictions from attending celebration and festivities, 17.92% from eating certain foods, 9.43% from doing household work²⁸. Among school girls in Iran, Siabani S reported that 58.8% of girls faced restrictions from doing household work /attending family function, 32.9% from attending school whereas 37.4% girls did not face any such restrictions²⁹. Among Lebanese girls, 189 (49.4%) girls did not practice any restriction; 50% of the girls followed customs and practiced different restrictions during menstruation. Among them, 35.5% changed their eating habits with 22% not drinking cold water, 20% avoided citric foods to prevent risks of amenorrhea, 20% did not touch plants or babies, 19.0% were not walking barefoot, 18.2% did not participate in social activities or in housework³³. Haque SE et al in Bangladesh reveals that 45.4% of the girls did not visit their relatives, friends or neighbours during menstruation³⁴. Alam MU et al in Bangladesh reported that, 71% of the girls were not allowed to go out, 51% from performing religious activities, 32% from cooking or eating certain foods and 7% were instructed not to walk fast during menstruation³⁵.

4.6. Menstruation in Indian context:

4.6.1. Age at menarche:

In a pilot study conducted by Sharma ML (2017) at Punjab among adolescent girls studying in government and private schools, it was reported that 57.35% attained the menarche between 13-15 years of age³⁸. Mohanty S et

al in their study among school going adolescent girls in urban slums, Odisha reported that the age of attainment of menarche ranged from 11-15 years with mean age of 13±0.5 years³⁹. Similarly, in a study conducted by Agarwal N et al among adolescent girls in Raipur, India, it was reported that 50.95% girls attained menarche at 13 years of age⁴⁰. In a study done by Sharma S et al among adolescent girls aged 10-19 years in resettlement colony in Delhi, the mean age of menarche was 11.4±5.3 years⁴¹. Also in another community study done by Jogdand K et al among adolescent girls aged 10-19 years in slums of Guntur, Andhra Pradesh, 72.77% of the girls attained menarche between 12-14 years of age⁴². Ramachandra K et al in their study conducted among adolescent girls age 13-16 years at Bangalore found that the age at menarche among 88.5% of the girls ranged between 11 to 15 years with the mean of 12.39 ±0.908 years⁴³. Kapoor G et al (2017) in their study among adolescent girls studying 8th to 12th standard in government higher secondary school in Jammu district reported that the mean age of menarche among the adolescent girls was 13.43±.83 years⁴⁴. Nayak S et al (2016) in their study among adolescent girls aged 10-19 years in urban areas of Jabalpur, Madhya Pradesh, reported that the mean age of menarche was 13.13 ± 1.046 years with the range of 10-16years⁴⁶. In a study conducted by Savanthe et al at Kuppam, Andhra Pradesh it was found that the age at menarche among girls (83.4%) was between 13 and 15 years with the mean age of 13.83 years⁴⁷. Kanyadi S et al in a study among adolescent girls aged 16-19 years residing in an urban area in Karnataka reported that the mean age at menarche was 12.8±1.73 years⁴⁸. Chauhan P

(2018) et al in a study among school going adolescent girls aged 11-19 years studying 7^{th} to 10^{th} class in Telangana, India reported that the mean age at menarche was 12.3 years and 88.4% girls had attained menarche between 11 and 13 years⁴⁹. Dambhare DG et al (2012) in their study among adolescent girls of class 5 to 12 in 6 schools (3 urban and 3 rural) at Wardha, Maharashtra, reported that the mean age at menarche was 13.67 ± 0.8 years⁵⁰. Thakre SB et al (2011) in their community based cross sectional study among adolescent girls studying 8^{th} and 9^{th} class in Nagpur, India found that the mean age of menarche was 12.85 ± 0.867 years; the age of menarche was earlier in urban areas (12.76 ± 0.936) years than in rural areas ($12.86 \pm 0.0.938$ years)⁵⁶. The mean age at menarche among adolescent girls from the above states was around 12-13 years.

4.6.2. Awareness about menstruation before menarche:

Sharma ML (2017) in a study among adolescent girls studying in government and private schools in Punjab, 52.94% girls were aware about menstruation before menarche and the remaining 47.06% were not aware³⁸ whereas Mohanty S in their study reports that among adolescent girls studying in class IX in government school in urban slum in Odisha, only 15% of girls were aware about menstruation before menarche³⁹. Agarwal N et al (2018), Raipur, India reported that 52.09% of the girls were aware of menstruation before menarche⁴⁰. Jogdand K et al in a study among adolescent girls at Guntur, Andhra Pradesh found that only 36.19% girls were aware of menstruation before the attainment of menarche⁴². Ramachandra K (2016) in a

study conducted at Bangalore among adolescent girls aged 13-16 years in an urban area reports that only 33.27% had awareness about menstruation before menarche⁴³. Kapoor G (2017) in a study among adolescent school girls studying in a government school in Jammu reported that, only 49.24% of the girls were aware about menstruation before menarche⁴⁴. Katiyar K et al (2013) in a study among adolescent girls aged 10-19 years in an urban area of Meerut reported that 39.9% of the girls who attained menarche and 32.9% of the premenarchial adolescent girls had prior knowledge about menstruation⁴⁵. Savanthe et al in a study among adolescent girls in Kuppam, Andhra Pradesh reports that only 24.7% of the college girls were aware of menstruation before menarche⁴⁷. On the contrary, Kanyadi S et al in their study in Karnataka reported that, 66.6% girls were aware of menstruation before attaining menarche⁴⁸. Chauhan P et al found that 35.8% of the adolescent girls aged 11-19 years in Telengana knew about menstruation before they attained menarche⁴⁹. Dambhare DG et al (2012) reported that 24.42% of the adolescent school girls in Wardha received no information about menstruation before menarche⁵⁰. Dube S et al in a study among adolescent girls aged 15-19 years in rural and urban areas of Jaipur, Rajasthan reported that 32% of the urban girls and 62% of the girls from rural area had no prior information regarding menstruation⁵¹. In a study at a rural area in Maharashtra, Parle J et al (2019) reported that 55.2% of the adolescent school girls aged 10-18 years have heard about menstruation before menarche⁵². Thakre SB et al in Nagpur reported that only 36.95% of the girls were aware of menstruation before menarche⁵⁶.

4.6.3. Source of information about menstruation:

Sharma ML in a study among adolescent girls in private and government schools in Punjab reported that, the source of information about menstruation was the mother or elder sister in 74.60 % of the girls and teachers /friends were the source of information in 19.04% of the girls³⁸. In a study conducted by Mohanty S at Odisha, mothers were the source of information for 94% of the girls³⁹. Agarwal N reported that in Raipur India, mothers were the source of information among 41.61% of the girls, sisters (12.41%) and friends (13.87%). The other sources were Teachers (6.57%), Relatives (2.92%), TV (5.11%), Movies (2.19%) and Magazines (15.33%)⁴⁰.

In a study conducted by Jogdand K et al in Guntur, mother was the first source of information in 61.29% of girls, followed by teachers (13.98%), friends (22.58%) and relatives (2.15%) ⁴². Ramachandra K et al (2016) in Bangalore, Karnataka reported that mothers (85%) followed by friends (30%) were the main source of information about menstruation⁴³. Kapoor G et al in their study at Jammu found that the source of the information were mothers (66.15%), followed by sisters (21.55%), friends (6.16%), Teachers (3.07%) and relatives (3.07%) ⁴⁴. In a study conducted by Katiyar K among adolescent girls living in an urban area of Meerut, it was found that 66.9% of the girls acquired information from mothers, 10.8% from their sisters, 9.5% from friends, 4.7% from their teachers and 8.1% from other sources⁴⁵. In Andhra Pradesh, Savanthe AM reports that the major source of information was mother (53.5%), followed by friends and peer groups (25%). Other sources were books, library,

and journals (2.9%). Least used source was media, which included TV, newspaper, and Internet⁴⁷. In an urban area at Karnataka, Kanyadi S reported that mothers were the sources of information among 185 (44.5%) girls, followed by teachers (18.0%), sisters (16.0%), friends (12.3%) girls, relatives (5.3%) girls and mass media (3.9%) of the girls⁴⁸. Chauhan P (2018) et al reported that in Telengana, mothers (43%) were the main source of knowledge followed by friends (20.6%) and sisters 16 (17.1%) 49. Dambhare DG et al in their study found that 38.15% of the adolescent girls in Wardha, Maharashtra had received information about menarche from the mothers, 32.26% from friends, 3.03% from teachers and 2.14% from books or magazines⁵⁰. Parle J et al in their study among adolescent school girls in a rural area in Maharashtra observed that mothers (74.09%) were the main source of information ⁵². Kumar K et al in a school at rural area in Bihar reported that 61% of the girls had received information about menstruation from their mothers, followed by friends (30%) and other source (9%) ⁵³. Kansal S (2016) in a study conducted at Varanasi, reported that the main source of information about menstruation were sisters (55%), followed by friends (18.9%), mothers (15.5%), relatives (9.1%) and teachers (1.4%) ¹². Patle R et al reported that in Maharshtra, mothers were the source of information among 32.09% of the adolescent girls in urban area and 36.50% of the girls in rural area⁵⁵. Thakre SB et al reported that, in a study conducted at Nagpur, India, the source of information were mothers (71.33%), sisters (23.78%), friends (18.18%), teachers (11.89%) and others (12.59%) ⁵⁶. In Bareilly district of Uttar Pradesh, Kumar P report that the source of information about menstruation in rural areas were mothers (35.1%), friends (33.5%), elder sisters (25.5%), grandmothers (4.8%), media (3.7%), teachers (2.6%) and others (2.6%). The sources of information in urban areas were mothers (38%), elder sisters (34.6%), friends (19.8%), teachers (7.9%), media (4.5%), grandmothers (2.3%) and others (1.7%) ⁵⁷. From these studies, it can be observed that mothers were the main source of information about menstruation among adolescent girls residing in various states in India.

4.6.4. Knowledge about menstruation:

Kanyadi S et al (2017) in a study among adolescent girls aged 16-19 years in an urban area of Karnataka reported that, 74.3% girls were aware that poor perineal hygiene predisposes to RTI⁴⁸. Chauhan P et al found that 18.6% girls in Telengana were aware of the physiological basis of menstrual cycle, 48.2% about normal age at menarche, 56.6% about duration of cycle; 11.9% of the girls knew that uterus was the source of bleeding, 11.1% knew the role of hormones in menstrual cycle, and 15.9% knew about the relation of menstruation to pregnancy; 35.8% girls were aware that women stop menstruating at a particular age. They also reported that the overall knowledge about menstrual cycle was very poor⁴⁹. Dube S in a study at Rajasthan reported that 19% of the urban girls and 12% of the rural girls were aware that regular menstruation is important for pregnancy⁵¹. Parle J et al found that 68.1% girls in Raigad district, Maharashtra knew that menstruation is a normal process. According to respondents, the source of menstrual blood was vagina (28%), abdomen (15.8%) and bladder (15.6%). About 92.4% did not know about menstrual hygiene; 53.3% had poor knowledge while 46.7% had good knowledge on menstruation and menstrual hygiene⁵². Kumar K in their study among adolescent girls studying in class 8th, 9th and 10th in a school in a rural area in Kishanganj District, Bihar reported that 45% of the girls answered vagina as the source of menstrual bleeding, 40% as uterus, 8% as urinary bladder and 7% as abdomen⁵³. Kansal S et al in their study conducted in a rural area at Varanasi, reported that 29.4% of the adolescents were aware of menstruation before its onset¹². Dillu R in a study among adolescent school girls aged 11-16 years in Haryana reported that 8% of the girls had good knowledge on menstruation, 81% had fair knowledge and 11 % had poor knowledge⁵⁴.

Patle R et al in their study on menstrual hygiene in rural and urban area in Nagpur, Maharashtra found that 63.38% girls in urban area and 47.57% girls in rural area were aware of menstruation before menarche⁵⁵. Thakre SB et al reported that 80.62% of the adolescent girls were not aware of the cause of the bleeding, 76.23% were not aware of the source of the menstrual bleeding and only 2.58% knew that the source of the menstrual bleeding was the uterus⁵⁶. Kumar P in Uttar Pradesh reported that 66.2% of the girls in rural areas and 74.3% of the girls in urban areas were aware that menstruation was a normal physiological process and 9% and 3.4% of the girls in rural and urban areas respectively said that menstruation was a curse. About the source of menstrual bleeding, 24.3% and 41.9% of the girls in rural and urban areas were aware that uterus was the source, whereas 56.2% and 41.4% of the girls from rural and

urban areas respectively were not aware of the source of menstruation. Also, 89% of girls from rural areas and 92.8% of the girls from urban areas said that the average length of menstrual cycle was 3-5 days. ⁵⁷.

4.6.5. Attitude towards menstruation:

In a study conducted at Punjab by Sharma ML, 61.90% of the girls considered menstruation as a physiological process while the 38.10% as a curse of God or a disease³⁸. Savanthe AM et al reports that in Andhra Pradesh, 84.1% of the girls believed that, during menstruation, one should avoid holy places and functions. 52.8% believed that one should avoid curd, 34.7% believed non vegetarian foods should be avoided, 44.5% felt new clothes should be avoided, 45.7% felt that girls they should not go alone outside, 54.5% believed that the girls should be isolated for 3 days of flow, and 42.5% believed that the girls should never be intimate with boys during menstruation⁴⁷. Kanyadi S et al reported that 79% of the adolescents in Karnataka believed that menstruation was a natural cyclical process⁴⁸. Chauhan P et al in a study at Telengana reported that, among those who had restrictions, 65.3% were comfortable with those restrictions as it kept them away from the household work giving them chance to take rest. The rest (34.7%) were not happy as the restrictions interfered with their freedom⁴⁹. Dube S reported that 60% of the urban girls in Rajasthan had the opinion that menstruation was a natural cyclic process, whereas 56% rural girls were of the view that it was some kind of disease or a physical problem⁵¹. Kumar K in a study among adolescent girls in a rural area in Bihar reported that 70% girls believed menstruation as a physiological phenomenon, 19% girls believed as a disease and 11% as a curse of God⁵³. In a study conducted at Nagpur, Thakre SB reported that 18.35% of the girls believed menstruation as a physiological process and 1.03% believed it to be a curse from God⁵⁶. Kumar P reported that 48.1% of the girls in rural areas and 40.5% of the girls in urban areas were of the opinion that menstruation was a bothersome event⁵⁷.

4.6.6. Problems during menstruation:

In a study conducted among adolescent girls studying in Punjab, Sharma ML reported that only 22.23% of the adolescent girls had no problem during menstruation whereas 77.73% suffered from heavy bleeding, backache, abdominal pain, irregular menstruation, etc. Painful menstruation was the most common problems experienced by 36.67% girls in private school and 39.39% of the girls in government school³⁸. Mohanty S et al in a study among adolescent girls in a slum in Odisha reported that, premenstrual symptoms were experienced by 57% of the girls and dysmenorrhoea was experienced by 73.5% of the girls. Among those who experienced dysmenorrheal, 78.6% used medications for pain relief ³⁹. Agarwal N et al reported that among adolescent girls in Raipur, Chhattisgarh, abdominal pain (59.7%) was the most common problem followed by headache/irritation (23.57%), loss of appetite (11.79%) and leg cramps (11.03%) 40. Sharma S revealed that 53.5% of the girls in a resettlement colony in Delhi experienced dysmenorrheal 41. Katiyar K in a study conducted at Meerut reported that 72.7% of girls were suffering from at least one menstrual disorder, the most common being dysmenorrheal (58.4%) followed by oligomenorrhea (16.2%), menorrhagia (13.9%), tension (13.6%), irregular menstruation (12.3%), amenorrhea (2.6%) and menometrorrhagia (1.9%) 45. In Jabalpur, Madhya Pradesh, Nayak S reported that 74.4% of the girls experienced abdominal pain, 57.7% experienced low back pain, irritation (44%), tiredness (29.7%), pain in breast (29.2%) 27 puffiness of face and body (16.1%), 20 constipation (11.9%) and irregular cycles and heavy bleeding (5.9%) ⁴⁶. Savanthe AM reported that 81.9% of the girls in Andhra Pradesh had regular cycles. About 52% girls experienced no pain during menstruation and 48% experienced pain during menstruation. About the flow during menstruation, 56.2% had flow for 3–5 days, 35.9% reported flow of less than 3 days (oligomenorrhea). The average duration of menstrual flow was 4.14 ± 1.2 days. The problems reported during menstruation were: Metrorrhagia (13.6%), menorrhagia (3.2%), acne/pimples (50.6%), irritability/mood swings (25.3%), sleep disturbances (24.3%), headache (24.2%), abdominal pain (53.2%) and backache (35.6%) ⁴⁷. Dambhare DG et al found that 56.15% of the adolescent girls in Maharashtra experienced premenstrual symptoms and headache (26.74%) was the most common symptom experienced ⁵⁰. In Bihar, Kumar K reported that the most common problem experienced by adolescent girls were abdominal pain (79.5%) followed by weakness (26%), excessive bleeding (22%), itching with white discharge (12%), nausea with vomiting (6.5%) and pain in breast(4%) ⁵³.

4.6.7. Practice on menstrual hygiene:

Sharma ML (2017) in a study conducted at government and private schools in Punjab, reported that 33.82% of the girls were using home-made pads and 58.82% of the girls [private school (52.5%) and Government school (47.5%)] were using disposable sanitary pads. In private school, among the girls who used who used cloth, 33.34% used washed and cleaned cloth and 55.56% used any available cloth whereas in government school, 57.14% and 28.58% of the girls respectively practiced similarly³⁸. Mohanty S et al (2016) in their study at Odisha, found that 69% of the adolescent girls had normal menstrual cycles i.e. (21-35days). The duration of cycle was 3-4 days in 51% of the girls and 5-7 days in 45% of girls. About 56.8% of the girls used only sanitary napkins, 13 (12.7%) used only clothes and the remaining used both clothes and sanitary napkins; 20% of the girls changed the absorbent material once a day; 42.2% girls changed pads at school and the remaining revealed that although there was constant supply of water in toilets, they did not change their napkins in school due to unavailability of soaps and dustbins³⁹. Agarwal N et al in their study among girls in Raipur reported that 49.81% of the girls were using cloth and 17.87% used sanitary napkins. Cleaning of external genitalia was not satisfactory (frequency of cleaning of external genitalia was nil or <2 times/day) in 32.70% of the girls; 58.17% girls used both soap and water for cleaning the genitalia and 48.29% girls disposed the used absorbent material in satisfactory manner⁴⁰. Sharma S et al in their study among adolescent girls in a resettlement colony in Delhi reported that 78.8% of the girls had regular

periods and 71.8% of the girls had average flow (each period lasting 3-5 days). During menstruation, 85.9% girls used sanitary pads. Among those girls who did not use sanitary pads, the reasons reported were: 55.5% said that they followed mothers' advice and kept using cloth, 44.5% girls found expensive to buy sanitary napkins. About the method of disposal, 91.9% of the girls threw the absorbent along with routine waste⁴¹. Jogdand K et al in a study among adolescent girls in a slum area in Guntur reported that in 66.54% girls, the length of menstrual cycle was 28-32 days. In 15.96% girls, blood flow lasted more than 5 days. The absorbents used during menstruation were sanitary pads (53.7%) and old clothes (34.63%) ⁴². In a study at Bangalore by Ramachandra K et al (2016), it was found that 69% of the girls were using sanitary pads followed by new cloth (14%) and old cloth (11%) ⁴³. Kapoor G (2017) in a study among school girls in Jammu reported that 59.09% of the girls used only sanitary pads and others used clothes. During menstruation, 6.82% did not take bath daily. About the method of disposal, 7.58% were burning the used material, 70.45% were throwing with routine waste and 21.97% were following other methods like flushing and hiding. Regular hand washing practice was followed by 90.91% girls; among them 86.36% girls used soap and water for hand washing, 10.61% used water and antiseptics and 3.03% used only water. Regular cleaning of the external genitalia was followed by 65.91% girls; among them 66.67% used soap and water and 33.33% used only water. Toilet facility was present in homes of 76.52% girls and 23.48% girls' homes were still deprived of toilet facility⁴⁴. In a study among adolescent girls in Meerut,

Katiyar K et al reported that 55.2 % of the girls used sanitary pads, 36.7% used piece of old cloth, 6.2% of the girls used homemade cotton pads and 1.9% used clean cloth which was washed and dried under sunlight⁴⁵. Nayak S et al in a study conducted among adolescent girls in urban areas of Jabalpur, Madhya Pradesh, reported that the mean cycle length was 29.5 days ranging from 20-60 days. Regarding the type of absorbent, 70.2% were using sanitary pads, 25.6% were using clean cloth and 4.2% were using cotton and gauze. About 70.2% of the girls were throwing the used material, 16.1% were washing and reusing the clothes and 13.7% were burning the used material⁴⁶. Kanyadi S et al (2017) in their study reported that 43.4% of the adolescent girls in Karnataka used sanitary pads, 33.1% used cloth, 22.2% used both sanitary pads and cloth and 1.3% used tampon. Among the cloth users, 63% reused cloth and 37% used fresh cloth every cycle⁴⁸. Chauhan P (2018) et al in Telangana reported that 97% girls were using sanitary pads and none used old cloths. 52% of the girls changed their absorbent material twice daily and 43.6% changed more than twice a day. Also 4.2% of girls change their absorbent only once, which could impose a risk for infection. About 23.6% of girls disposed the used absorbent in drains, wasteland, or commodes, 4.8% disposed by burning, and 8.5% buried it underground, 63% disposed in dustbin; 64.8% of girls wrapped the pads regularly and 6.7% wrapped sometimes, paper (52.9%) was used for wrapping and 45.4% of girls used paper and plastic for wrapping. All the girls took bath daily. Regular hand washing after changing absorbent is practiced by 92.7% girls and 74.8% washed with soap and water. 69.1% of girls regularly cleaned

their external genitals and 64.3% of the girls 64.3% used water for cleaning⁴⁹. In a study at Wardha, Maharashtra, Dambhare DG reported that among 8.38% of the adolescents, the length of menstrual cycle was shorter than 21 days, between 21 and 35 days in 69.52% of the girls and longer than 35 days in 22.1% of the girls⁵⁰. Dube S reports that 80% of the urban girls in Rajasthan were using branded sanitary napkins, while only 14% of the rural girls used this type of napkins; 65% of the girls from rural area used home-made disposable pads made up of old torn out clothes⁵¹. Parle J, in a study conducted at Maharashtra reported that during menstruation, 85.8% of the girls used absorbent material; 85.2% used sanitary pads while 14.5% used cloth. About 49.2% of the girls changed their pad twice daily. It was also reported that 52.8% adolescent girls had poor practice and 47.1% followed good practice during menstruation⁵². Among adolescent school girls in Bihar, Kumar K reports that 70% of the girls used only sanitary napkins, 14% used old cloth, 9% used new cloth and 7% used both napkin and cloth⁵³. Kansal S et al (2016) reported that in Varanasi, 31% of the adolescent girls were using sanitary pads while, 69% were using clothes. Among those who were using clothes, 17.6% were washing and reusing it¹². Thakre SB et al reports that 49.35% of the girls in Nagpur used sanitary pads, 45.74% used old cloth pieces and 4.9% used new pieces of clothes during menstruation. The use of sanitary pads was 60.58% in urban girls, and 30.82% in rural girls. The cleaning of the external genitalia was unsatisfactory in 58.09% of the urban girls and 79.45% of the rural girls; 58.18% girls used soap and water, 40.57% used only water and 1.29% used water and antiseptics. For disposing the used materials, 52.2% practiced burning (46.89% of the urban and 60.96% of the rural girls), 39.79% threw it with the routine waste and 6.72% used other methods of disposal. The total number of absorbents which were used during the last menstrual period ranged from 1-18 and the median number of the absorbents which were used by each participant was (8 ± 3.18) pads⁵⁶. In a study at Bareilly, Uttar Pradesh, Kumar P reports that 48.3% adolescent girls were using sanitary pads, 47.8% of the girls used old cloth and 3.8% used new pieces of cloth. The use of sanitary pads was 35.1% in rural girls and 62.5% in urban girls. In rural areas, the methods of disposal of used absorbents were: 25% threw in dustbin, 13.3% buried in ground, 47.8% burnt and 13.8% threw the materials on road side, whereas in urban areas, 57% were throwing in dustbin, 4.5% buried in ground, 33.5% burnt and 4.5% threw the materials on the road side. Only 54.5% of the girls in rural and 53.4% of the girls in urban were taking bath during menstruation⁵⁷. These studies done in various states show that the menstrual hygiene practices among adolescent girls are not satisfactory.

4.6.8. Absenteeism from schools

Mohanty S in a study among adolescent girls in Odisha reported that 23.5% of girls were missing schools during menstruation and 54% of the girls revealed that their studies were adversely affected during menstruation³⁹. In a study conducted by Chauhan P at Telangana, 32.7% of girls reported absenteeism from school and pain, discomfort or tiredness were the most common reasons for absenteeism⁴⁹. Parle J et al reports that 29% of the girls in

Raigad district, Maharashtra remained absent from school during menstruation and the reasons were lack of toilet facilities (39.08%) and fear of unexpected bleeding (40.80%) ⁵². In a study by Thakre SB in a study among adolescent girls in Nagpur reported that 25.17% girls were not allowed to attend their schools during menstruation ⁵⁶. In Uttar Pradesh, Kumar P reported that 44.7% of the adolescent girls from rural areas and 40.9% of the girls from urban areas were absent from school during menstruation. ⁵⁷.

4.6.9. Restrictions faced during menstruation:

Sharma ML in Punjab found that 70% of the girls followed some kind of restrictions during menstruation, which was more common among the girls studying in the Government School compared to the Private School; 64.45% girls were not allowed to participate in any religious function or prayers, 13.33% girls were not allowed to eat foods like sour foods, banana, radish and plum, 15.55% were not allowed to do routine house hold activities and 6.67% were restricted from playing³⁸. Mohanty S et al in a study among girls studying class 9 in an urban slum, Odisha reported that 93% of the girls followed restrictions during menstruation like worship, kitchen, touching households and sleeping on bed³⁹. In a study done at Raipur, Agarwal N revealed that 16.35% of girls did not practice restrictions and 57.79% of the girls did not attend religious occasions⁴⁰. Sharma S et al reported that 53.5% girls in Delhi did not face restrictions, 40.0% girls were not allowed to go out during menstruation. The girls were restricted from going to temple (82%), working in kitchen (30%), playing (26%) or doing routine household work (21.8%) eating certain

foods (9%) during menstruation 41. In Guntur, Andhra Pradesh, Jogdand K reports that 78.99% girls were not allowed to attend religious occasions, 22.97% were restricted from doing routine household work and 20.63% girls from playing⁴². In a study conducted by Kapoor G among adolescent girls in Jammu, 51.54% of the girls were restricted from attending religious functions, 34.62% from attending household work, 10% from playing, 28.46% from attending school, 23.85% from eating certain types of food⁴⁴. In Andhra Pradesh, Savanthe AM reported that 10.9% of the girls did not follow any restrictions 89.1% practiced one or the other restriction during menstruation; 77.8% of the girls were restricted from entering into kitchen and pooja room; 20.7% from touching anyone and 17.6% avoided eating certain food items⁴⁷. Chauhan P reports that in Telangana, the restrictions among adolescent girls were mainly related to praying (88.45%), kitchen work (21.82%) and 11.51% followed no restrictions in the house⁴⁹. In Jaipur, Rajasthan, Dube S found that 33% and 73% of the urban and rural girls respectively considered menstruation as a social taboo and were not allowed to eat certain foods, enter the kitchen and worship place, to eat cold and sour food like pickles, curd etc⁵¹. In a study at Maharashtra conducted by Parle J et al, 534 (88.9%) girls were not allowed to visit holy places during menstruation⁵². Thakre SB in a study at Nagpur found that 26.36% of the girls did not practice any restrictions and 73.64% of the girls practiced different restrictions during menstruation. Among those who practiced restrictions, 71.78% of the girls were not permitted to attend any religious functions or visit temples, 26.36% were restricted from doing household work, 26.36% were not allowed to sleep on the routine bed and 24.81% of the girls were not allowed to touch anyone⁵⁶. Kumar P et al reported that 22.7% of the adolescent girls in Bareilly district, Uttar Pradesh did not practice any restrictions. Among those who had restrictions, 73.9% in rural areas and 66.7% in urban areas did not attend religious activities, 42.2% and 32.5% of the girls in rural and urban areas respectively did not cook during menstruation; 29.6% and 25.4% of the rural and urban girls respectively did not do household work; 29.6% and 15% respectively in rural and urban areas were made to sleep separately; 41.5% and 29.4% of the girls in rural and urban areas were not allowed to play during menstruation⁵⁷.

4.7. Menstruation in Tamil Nadu and Puducherry:

4.7.1. Age at menarche:

Barathalakshmi J et al in their study among 435 school going adolescent girls studying in the grades of 8th to 12th standards in government girls higher secondary school in Chidambaram, Tamil Nadu reported that the mean age at menarche was 12.9 + 1.2 years⁵⁸. In a study conducted in 2016 by Seenivasan P et al among adolescent girls aged 12-17 years studying 8th to 12th class in five government schools in North Chennai it was, 69% of the girls had attained menarche at 11 to 13 years and the mean age at menarche was 12.1±1.5 years⁵⁹. Jothy K et al (2012) in their study among adolescent girls studying in five government higher secondary schools in Cuddalore reported that 43.6% of the girls attained puberty at 13 years of age and more than 70% girls attained puberty before 13 years of age. The mean age at menarche was 13.2 years⁶⁰. In

a study conducted by Devi UR in a government school in Kancheepuram district, it was reported that 68.89% of girls have attained menarche in the age ranged between 12-14 years⁶¹. Priya SS (2016) in a study conducted among middle and higher secondary government school girls in Salem found that the minimum and maximum age of menarche were 11 years and 16 years respectively with the mean age of 12.67 years and majority of the girls attained menarche between the ages 12 and 13 years⁶². Varghese MM in a study among adolescent school girls aged 13-18 years in four schools in Porur, Chennai reported that the mean age of attaining menarche among the girls was 13.08±3.5 years⁶³. Priya HS et al in their study among adolescent girls in rural Puducherry found that the mean age at menarche among study participants was 12.71± 1.05 years and 53.8% of the girls attained menarche between 12-14 years of age⁶⁶. The mean age at menarche among the adolescent girls was around 12-13 years.

4.7.2. Awareness about menstruation before menarche:

Barathalakshmi J et al in a study at Chidambaram, Tamil Nadu reported that only 28.2% of the girls were aware of menstruation before attaining menarche⁵⁸. Seenivasan P, Chennai, Tamil Nadu recorded that only 40 % of the girls were aware about menstruation before menarche⁵⁹. Among the adolescent girls studying in government schools, Cuddalore, Jothy K et al reported that 71.8% of the girls were aware about menstruation before attaining menarche⁶⁰. Devi RU in a study among school girls aged 11-16 years in Kancheepuram district, reported that only 43.33% girls were aware of menstruation before the

attainment of menarche⁶¹. Iswarya S et al in their study among 200 adolescent girls studying in class 7 to 9 in a public school at Coimbatore found that 39% of the girls were aware of menstruation before menarche⁶⁴. Deepa S et al (2017) in their study conducted among school and college girls aged 14-23 years and married women in the age group of 23 to 45 years at 8 villages in 4 districts (Coimbatore, Erode, Nilgiris, Tiruppur) in Tamil Nadu, reported that 67% of the girls in Coimbatore, 51.9% in Erode, 65.7% in Nilgiris and 71.5% in Tiruppur were aware of menstruation before menarche⁶⁵. In a study conducted at Puducherry, Priya HS et al reported that 52% of the girls had received any information regarding menstruation and menarche before attainment of menarche, while 48% of the girls were not aware of those informations⁶⁶.

4.7.3. Source of information about menarche:

In a study at Chidambaram by Barathalakshmi J et al, mothers and elder sisters were the main source of information about menstruation and menstrual hygiene among 38.2% girls⁵⁸. Seenivasan P in a study among Chennai school girls observed that mothers (47.7%) were the main source of information followed by friends (39.5%), sisters (6.1%), teachers (4.5%) and electronic media (2%) ⁵⁹. In a study by Jothy K at Cuddalore, it was reported that the sources of information about menstruation before attaining menarche were mothers (56.1%), friends (31.8%) and TV/Radio (26.4%) ⁶⁰. In a study conducted at Kancheepuram district among school girls aged 11-16 years, Devi RU reported mothers (57.69%) were the first source of information regarding menstruation and friends (23.08%), teachers (12.82%), and relatives (6.41%)

were the other sources⁶¹. In a study conducted at Coimbatore by Iswarya S et al, 86% of the girls had come to know about menstruation from their mothers⁶⁴. Priya HS in a study conducted at Puducherry reported that mothers were the primary source of information among 32.1% of the girls, followed by sisters in 24.7% girls and friends and relatives in 23.9% of the girls⁶⁶. In Chennai, Parameaswari PJ et al reported that elder sisters (31.5%) were the main source of information about menstruation followed by friends (28.7%), relatives (13.2%), books (8.2%), school (5.9%), mother (5.4%), television (4.7%) and newspapers (2.4%) ⁶⁷. It can be seen that mothers were the primary source of information regarding menstruation.

4.7.4. Knowledge about menstruation:

In a study conducted by Barathalakshmi J et al at Chidambaram, 61.3% of the girls reported that menstruation was a bleeding from stomach; only 30.5% girls knew that it as cyclical uterine bleeding; 2.7% thought menstruation as a bleeding from urethra. About the cause, 34.1% knew that menstruation occurs because of hormonal change whereas 62.7% girls did not know the cause for menstruation⁵⁸. Seenivasan P et al, Chennai reported that 76.2% of the girls believed that menstruation was for removing impure blood from the body. About 14.6% were not aware about the cause of menstruation; 8.8% knew that menstruation was due to hormonal changes and 0.8% thought that it as a disease. Source of bleeding was not known to 53% of the girls; 26% said as vagina and 20% knew that uterus was the source of blood in menstruation. About 52% reported that the normal interval between two cycles

was 20-40 days, 41% reported that the interval was less than 20 days and 7% of the girls said that the interval was more than 40 days⁵⁹. Jothy K et al at Cuddalore, Tamil Nadu reported that 56.7% of girls answered that menstruation was for removing the waste blood from the body, 35.1% girls were aware that menstruation was a hormonal process and 6.1% did not know the cause of menstruation. About the source of menstrual bleeding, 59.1% of the girls answered as abdomen, 4.5% as kidney, 1.9% as intestines, 21.8% did not know the source of menstrual blood and only 12.7% knew as uterus⁶⁰. In a study at Coimbatore conducted by Iswarya S, 92.5% of the girls knew that uterus was the organ responsible for menstruation and 88% of the girls knew that menstruation was a physiological process. Only 11% of the girls knew that menstruation is an indicator of fertility. Almost 93% of the girls correctly knew the frequency of menstruation as once a month and 93.5% of the girls were aware that the normal duration of a menstrual period lasts more than 3 days⁶⁴. These studies reveal that, the knowledge about menstruation among adolescent girls residing in various districts in Tamil Nadu is not adequate.

4.7.5. Attitude towards menstruation:

Seenivasan P et al in their study at Chennai reported that 59% of the girls felt scared on first menstruation; 14% felt disgusted, 18% felt indifferent and 9% felt discomfort⁵⁹. In a study at Cuddalore, Tamil Nadu, Jothy K reported that 85.4% of the girls believed menstruation as a physiological process, 8.2% of the girls believed as a curse of God, 4.0% believed as a disease and 2.4% girls believed to be the result of some sin⁶⁰. Iswarya S et al

among adolescent girls studying in class 7 to 9 in a public school at Coimbatore reported that 63% of the girls thought that menstruation was a good process. About 31.9% of the girls disagreed to the social misnomer that menstrual blood is impure⁶⁴. Parameaswari PJ et al in their study among adolescent girls aged 15-16 years studying in a government school in Chennai reported that 26.8% of the girls believed menstruation to be a normal process and 53.8% believed to be a curse from God or sin/disease⁶⁷. These studies reveal that although majority of the adolescents believed menstruation as a natural process, few girls still believed it as a curse from God.

4.7.6. Problems during menstruation:

In Chidambaram, Barathalakshmi J et al reported that 81% and 75.6% of the girls experienced leg cramps and lower abdominal pain respectively during menstruation⁵⁸. In a study conducted at Cuddalore by Jothy K et al, 78.8% of adolescent school girls had experienced abdominal pain, 16.1% experienced excessive bleeding and 8.2 % had breast pain⁶⁰. Devi UR in a study among adolescent girls aged 11-16 years in Kancheepuram district reported that 20% girls had blood flow for more than 5 days and in 57.77% girls, the length of menstrual cycle was 28-32 days⁶¹. Priya SS (2016) in a study among middle and higher secondary school girls in Salem reported that 62.2% of the adolescent girls had premenstrual symptoms and the most common were abdominal pain (94.6%), cramps (82.2%) and backache (77.8%). The other symptoms experienced were headache, irritability and breast tenderness. Among various menstrual problems experienced, the

dysmenorrhoea (65%) was the most common problem followed by oligomenorrhoea (16%) and menorhagia (11%) ⁶².

4.7.7. Practice on menstrual hygiene:

In a government school at Chidambaram, Tamil Nadu, Barathalakshmi J et al reported that 90.5% of the girls were using disposable sanitary pads; 46.2% girls used three pads in a day. About 14.5% girls were using soap or antiseptics to maintain the genital hygiene and only 37.7% were following good hygienic practices during menstruation. For disposal, 34% of the girls disposed the used materials by burying, 19.5% by burning 14.5% by throwing in open places whereas 32% were disposing along with domestic wastes⁵⁸. In government schools in Chennai, Seenivasan P et al reports that the hygienic practices during menstruation were quite satisfactory among the school girls; 92.6% used sanitary pads, 5% used new cloths and 0.6% used old clothes and 1.6% used a combination of all of these. About 77% of girls washed their genitalia more than 2 times a day, 21.2% washed once a day and 1.8% never washed during menstruation; 47.6% of the girls were using water and 37.4% used water with soap and 15% used water and antiseptic. Methods of disposal of used absorbents included dustbins (72.6%), flushing in toilets (12.2%), burning (3.6%) and washing and reusing (1.8%), other methods (9.8%) 59 . In a study conducted by Jothy K at Cuddalore, Tamil Nadu, it was reported that 31.5% of the girls used sanitary pads, 34.8% used old cloth pieces, 24.5% used new cloths pieces and 9.1% girls used cotton as absorbent during menstruation. The reasons reported for not using sanitary pads were high cost (47.3%), no

easy availability (33.6%) and difficulty of disposal (25.7%). For cleaning of external genitalia, 82.4% used water and soap. About 68.2% were not able to maintain privacy as they did not possess a covered toilet. Regarding bathing during last menstruation, 53% of the girls reported having taken bath every day and 38.2% girls took bath on alternate days. About the method of disposal, 45.2% of the girls reused the cloth pieces and 22.7% of the girls wrapped the used material in a paper bag and disposed in a place used for solid waste disposal, 24.8% of the girls buried the absorbent material, 20.9% girls burnt the material and 38.8% girls threw it with other waste. Also in rural areas where there is no garbage collection system, girls dumped it in the stream⁶⁰. In a study conducted by Devi UR in Kancheepuram, 50% girls used sanitary pads, 35.55% girls have reported use of old clothes and 14.45% girls used both sanitary pads and old clothes during menstruation⁶¹. Iswarya S in a study at Coimbatore reported that all the girls were using sanitary pads. 61.5% of the girls were changing 2-3 pads per day whereas 38.5% were changing more than 4 pads per day. Only 30.5% of the students practiced washing their genitals every time they use the toilet and 7% used soap and water⁶⁴. In a study conducted by Deepa S among school girls and college girls and married women in 8 villages in 4 districts found that 76.9%, 73.4% and 63.6% of the participants in Coimbatore, Erode and Tiruppur respectively were disposing their sanitary napkins/clothes in public dustbins and 48.5% practiced burying as a method of disposal⁶⁵. Parameaswari PJ et al, Chennai, reports that 63.1% girls used disposable sanitary pads, whereas 36.9% girls used reusable cloth⁶⁷.

About the methods of disposal of used materials, 50.6% girls used to wrap and dispose into an open dustbin, 22.6% used to wrap and dispose into a closed waste bin, 17.2% flushed in toilets and 9.6% threw in a well or lake⁶⁷. It can be seen that although the practices are different in different places, they are not adequate to maintain good hygiene.

4.7.9. Absenteeism in school:

Jothy K et al in their study at Cuddalore, Tamil Nadu reported 58% of the adolescent girls mentioned being ever absent due to menstruation and the reasons reported were lack of water supply for cleaning (89%), pain/discomfort (73.3%), shame (53.4%), lack of privacy for cleaning (49.7%), socio cultural beliefs (31.4%) and fear of menstrual accident/leakage (25.6%). Also many girls said that though they were physically present in the school they performed poorly in terms of concentration and attention as they were under constant worry that boys might figure out about their status by their facial expressions and movements. The girls also expressed that sometimes their menstruation was coinciding with exams and they would not get adequate time and opportunity to clean and change timely⁶⁰. In a study at Porur, Chennai conducted by Varghese MM among school girls, 94.6% of girls attended school during menstruation and only 5.4% of the girls did not go to school during menstruation⁶³. On the contrary, in a study at Chennai conducted by Parameaswari PJ et al, 30.1% were absent to school during menstruation⁶⁷.

4.7.8. Restrictions during menstruation:

In Chidambaram, Barathalakshmi J et al reported that 98.6% of the girls were not allowed to visit temple during menstruation; 97% girls were restricted from entering the pooja room at home; 80% girls revealed that they were not allowed to touch grains and other family members before taking bath and 93% of the girls were restricted from taking rest in daytime during menstruation⁵⁸. In a study done by Seenivasan P et al in Chennai, it was revealed that all the girls practiced one restriction or the other. The restrictions were not attending religious functions (92.4%), not doing household work (55.7%), not sleeping on routine bed (51.8%), not touching family members (48.4%), not touching stored foods (43.5%) and not attending school (9.2%). These restrictions were imposed mainly by family members (79.2%), self imposed (17.6%) or by friends (3.2%) ⁵⁹. Jothy K et al in their study at Cuddalore, Tamil Nadu reported that 74.5% of the girls did not attend any religious ceremonies, 64.2% were restricted from playing, 55.2% were not allowed to attend social functions like marriage, 60.3% were not allowed to move freely in the house, 33% did not perform any household work, 49.7% stated that they avoid certain foods such as sour foods, papaya, radish and non-vegetarian dishes during the menstrual period and only 6.8 percent were not practicing any restrictions⁶⁰. In a study conducted at Kancheepuram, Tamil Nadu, by Devi UR it was reported that 77.77% girls were not allowed to attend religious occasions, 41.13% were restricted from doing routine household work, 32.77% from attending school, 25.55% from playing and 7.77% from eating certain foods⁶¹. Varghese MM in their study among adolescent school girls aged 13-18 years in Porur, Chennai reported that 81.2% did not attend any religious functions during menstruation and the proportion of girls who experienced restrictions during menstruation were 86.3% among Hindus, 79.1% among Muslims and 42.5% among Christians. The girls aged 15 years or below had more menstrual taboos and girls who were educated higher than 10th standard had fewer menstrual taboos. It was also reported that 56.6% did not sleep in their usual place, 40.1% were not allowed to enter the kitchen, and 69.3% practiced restricted intake of certain food items during menstruation⁶³. All these studies show that restrictions during menstruation are very common in Tamil Nadu.

CHAPTER 5 MATERIALS AND METHODS



5. MATERIALS AND METHODS

Study design:

Community based Cross sectional study.

Study setting:

This study was carried out at

 Pulipakkam - Field practice area of the Rural Health and Training Centre of Karpaga Vinayaga Institute of Medical Sciences & Research Centre, Kancheepuram district, Tamilnadu .

2. Anna Nagar, Chengalpattu - Field Practice area of the Urban Health and Training Centre of Karpaga Vinayaga Institute of Medical sciences & Research Centre, Kancheepuram district, Tamilnadu

Study duration:

Aug 2017 to Oct 2019

Study population:

Adolescent girls residing at Field Practice Areas of RHTC and UHTC of Karpaga Vinayaga Institute of Medical Sciences & Research Centre, Kancheepuram district, Tamilnadu .

Sample size and sampling: In a study by Barathalakshmi et al ⁵⁸, it was found that 37.7% were following good practices for maintaining menstrual hygiene. With this prevalence and 5% difference, the sample size using the formula $4pq/d^2$ was estimated to be 373. Assuming 10% non response rate, the sample

size was found to be 410. Using Probability proportional to size, the sample size was 273 adolescent girls in rural area and 137 adolescent girls in urban area. Of the adolescent girls in rural, 17 did not respond. So the study was conducted among 256 adolescent girls in rural and 137 in urban.

Inclusion & Exclusion criteria:

Inclusion criteria:

1. Girls residing for more than 6 months at Pulipakkam and Anna Nagar who were in the age group of 10 to 19 years, who have attained menarche irrespective of their marital status.

2. The adolescent girls who were willing to participate after getting consent from them and their parents.

Exclusion criteria:

1. Girls who were mentally retarded, unable to comprehend the questions or unable to perform their daily routines due to sickness.

Those who did not agree to participate in the study were not considered.

Study instruments: A Pretested and semi structured questionnaire containing the details on demographic data, education of the parents, age at menarche, information about knowledge, attitude and practices of menstruation was used for the study.

Data collection: After obtaining ethical clearance from ethical committee and taking permission from the concerned authorities from urban and rural field

practice area, house to house visits was made. After getting consent (from mother if the girl is <12 years old or from mother and the participant if she was >12 years old), a pretested semi structured questionnaire containing details on demographic variables and menstrual hygiene practices was administered by personal interview method.

Operational definition for good menstrual hygiene: Adolescent girls who changed pads ≥ 3 pads/ day, used disposable sanitary pads or clean cloth, took bath daily, cleaned their external genitalia with soap and water daily during menstruation, were considered to practice good menstrual hygiene.

Data analysis: The data obtained was entered in Microsoft Excel sheet and analyzed using SPSS. Quantitative variables were summarized as mean and standard deviation. Qualitative variables were summarized as Percentages/proportions. To find the association between categorical variables Chi square test was used. To find difference between the quantitative variables, student t test was used at 5% level of significance. The knowledge section consisted of 5 questions. Those who scored ≤2 were considered to have poor knowledge, those who scored 3 were considered to have fair knowledge and who scored ≥4 were considered to have fair knowledge about menstruation. The attitude section consisted of 3 questions. The score ≤ 1 was considered unfavorable attitude and score ≥ 2 was considered as favorable attitude towards menstruation. The practice sections consisted of 4 items. Those who practiced all the 4 were considered to follow good menstrual hygiene practices and the

remaining were considered to have inadequate practice on menstrual hygiene.

Ethical issues: Ethical clearance was obtained from the Institutional Ethical Committee (IEC) of Karpaga Vinayaga Institute of Medical Sciences and Research centre, Kancheepuram, Tamil Nadu. The purpose of the study was explained to the respondents.

CHAPTER 6 RESULTS



6. RESULTS

This study was conducted with 393 adolescent girls. Among them 256 girls were in rural and 137 girls in urban. The age range was 11-19 years. The mean age of the adolescent girls was 15.58 ± 2.225 (15.83 ± 2.301 in rural and 15.13 ± 1.999 in urban).

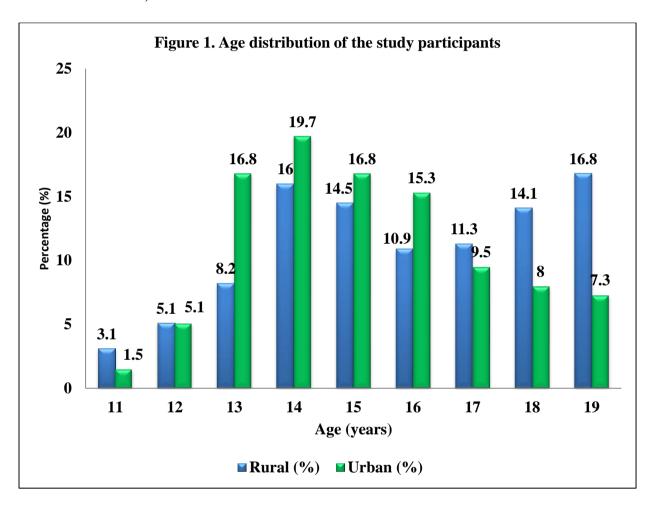


Figure 1 shows the age distribution of the study participants. In rural, 16.8% girls were aged 19 years and in urban 19.7% girls were aged 14 years.

Majority of the girls were unmarried; rural - 255 (99.6%) and urban -136 (99.3%).

Table 1: Distribution based on educational status of the study participants and their parents

Variables	Rural (N= 256)	Urban (N=137)	Total N=393
	Frequency (%)	Frequency (%)	Frequency (%)
Education of the participa	ants		
Middle school	32 (12.5)	21 (15.3)	53 (13.49)
High school	75 (29.3)	48 (35)	123 (31.3)
Intermediate or post high school diploma	149 (58.2)	68 (49.6)	217 (55.22)
Education of the parents			
Illiterate	24 (9.4)	5 (3.65)	29 (7.38)
Primary school	41 (16)	6 (4.38)	47 (11.96)
Middle school	46 (18)	4 (2.92)	50 (12.72)
High school	86 (33.6)	31 (22.63)	117 (29.77)
Intermediate or post high school diploma	26 (10.2)	39 (28.47)	65 (16.54)
Graduate or post graduate	29 (11.3)	45 (32.85)	74 (18.83)
Professional	4 (1.6)	7 (5.11)	11 (2.8)

Table 1 presents educational status of adolescent girls and their parents. Majority of the girls were studying as intermediate or post high school diploma in rural (58.2%) and urban (49.6%). The parents have studied up to high school (33.6%) in rural, whereas 32.85% were graduates or post graduates in urban.

Table 2: Distribution of study participants based on religion and socio economic status

			Total
Variables	Rural (N= 256)	Urban (N=137)	N=393
variables	Frequency (%)	Frequency (%)	Frequency
	Frequency (70)	Frequency (70)	(%)
Religion			
Hindu	222 (86.7)	105 (76.6)	327 (83.21)
Muslim	7 (2.7)	7 (5.1)	14 (3.56)
Christian	27 (10.5)	25 (18.2)	52 (13.23)
Socioeconomic status [Modified BG Pras	ad classification] ⁶⁸	
Upper	27 (10.5)	51 (37.2)	78 (19.85)
Upper middle	53 (20.7)	49 (35.8)	102 (25.95)
Lower middle	96 (37.5)	32 (23.4)	128 (32.57)
Upper lower	69 (27)	4 (2.9)	73 (18.58)
Lower	11 (4.3)	1 (0.7)	12 (3.05)

Table 2 describes religion and socioeconomic status of the adolescent girls. Most girls were Hindus in rural (86.7%) and urban (76.6%). Regarding socio economic status, 37.5% in rural belonged to lower middle class, whereas in urban, 37.2% belonged to upper class according to modified BG Prasad's classification 2018 ⁶⁸.

Table 3: Distribution of study participants according to socio demographic profile

	D	Linkon (N. 127)	Total (N=393)
Variables	Rural (N= 256)	Urban (N=137)	Frequency
	Frequency (%)	Frequency (%)	(%)
Birth order			
1	114 (44.53)	77 (56.2)	191 (48.6)
2	124 (48.44)	57 (41.6)	181 (46.06)
3	18 (7.03)	3 (1.5)	20 (5.34)
Family type			
Nuclear	163 (63.67)	100 (73)	263 (66.92)
Joint family	55 (21.48)	35 (25.5)	90 (22.9)
Three generation family	38 (14.84)	2 (1.5)	40 (10.18)
Study place			
Government	51 (19.9)	15 (10.9)	66 (16.79)
Private	205 (80.1)	122 (89.1)	327 (83.21)
Toilet facility at home	198 (77.34)	137 (100)	335 (85.24)
Toilet facility at study place	256 (100)	137 (100)	393 (100)

Table 3 shows that most girls in rural were born as 2nd child (48.44%), whereas in urban, most of them were first born (56.2%). Majority belonged to nuclear family in rural (63.67%) and urban (73%). Regarding the place of education, 80.1% of the adolescent girls in rural and 89.1% in urban were studying in private institutions. All the girls in urban had toilet facility at home, whereas 77.34% of the girls in rural had toilet facility at home.

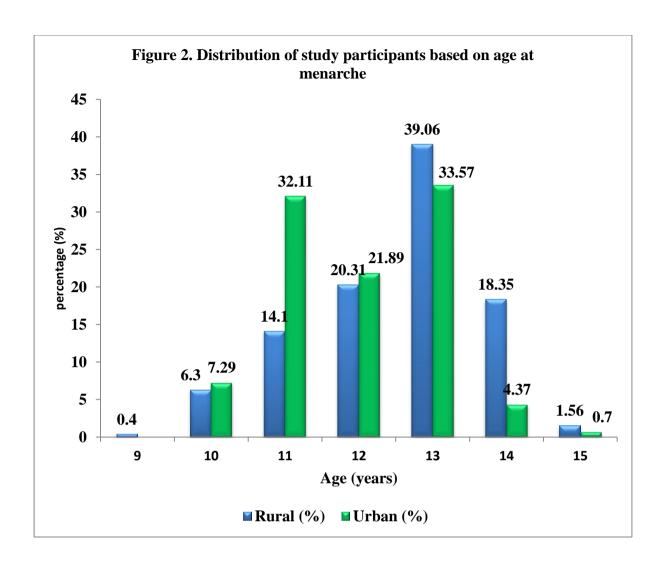


Figure 2 depicts age at menarche among adolescent girls. There was a significant difference in age at menarche among girls in rural and urban (χ^2 = 29.33, p value= 0.000; degrees of freedom 6). The mean age at menarche in rural was 12.53±1.191 years, whereas in urban, it was 11.98±1.095 years. This difference was statistically significant (**t=4.479**; **p value= 0.000**).

Table 4: Awareness of adolescent girls about menstruation before menarche

Awareness before menarche	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
Yes	130 (50.78)	59 (43.1)	2.12 (0.14)
No	126 (49.22)	78 (56.9)	

Table 4 describes awareness about menstruation before menarche. The awareness before menarche was 50.78% in rural and 43.1% in urban. This was not found to be statistically significant ($\chi^2 = 2.12$; p value= 0.14)

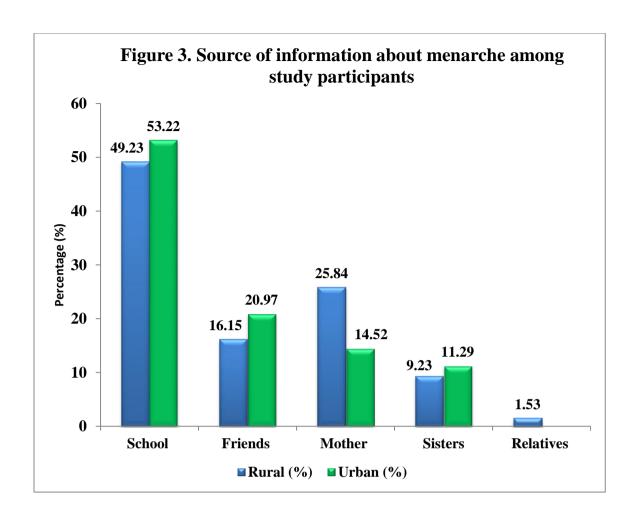


Figure 3 shows that the major source of information about menstruation before menarche was school teachers (49.23% rural, 53.22% urban), followed by mothers (25.84% in rural) and friends (20.97% in urban).

Table 5: Awareness on ideal age and cause of menstruation among study participants

Variables	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
Ideal age at menarche (yo	ears)		
9 to 11	33 (12.89)	23 (16.8)	1.686
12 to 14	211 (82.43)	110 (80.3)	(0.430)
15 to 16	12 (4.68)	4 (2.9)	
Cause of menstruation			
Physiological process	72 (28.12)	54 (39.42)	
To clean the body or remove dirty fluids	137 (53.52)	62 (45.25)	9.60 (0.022)*
For reasons of inner heat	4 (1.56)	6 (4.38)	
Don't know	43 (16.8)	15 (10.95)	

Table 5 depicts awareness of adolescent girls about ideal age and cause of menstruation. Majority of the girls (82.43% in rural and 80.3% in urban) reported that ideal age at menarche was 12-14 years. Only 28.12% girls in rural and 39.42% girls in urban were aware of menstruation as a physiological process. Also 16.8% and 10.95% girls in rural and urban respectively were not aware of the cause of menstruation and this was found to be statistically significant (χ^2 =9.60; p value= 0.022; df-3).

Table 6: Awareness of adolescent girls about source, frequency and occurrence of menstruation during pregnancy

	Rural (N=		
Variables	256)	Urban (N=137)	Chi square
	Frequency	Frequency (%)	(P value)
	(%)		
Source of menstrual blee	eding		
Uterus	107 (41.8)	72 (52.5)	9.412
Abdomen	20 (7.8)	6 (4.4)	(0.024)*
Urethra	48 (18.8)	32 (23.4)	(000_1)
Don't know	81 (31.6)	27 (19.7)	-
Frequency of menstrual	cycles	I	<u>I</u>
Once a month	228 (89.1)	125 (91.2)	4.188
2-3 weeks	14 (5.5)	2 (1.5)	(0.242)
4-5 weeks	8 (3.1)	5 (3.65)	(0.2.2)
Don't know	6 (2.3)	5 (3.65)	-
Occurrence of menstrua	tion during pregn	ancy	1
Yes	16 (6.3)	11 (8)	0.464
No	222(86.7)	116 (84.7)	(0.793)
Don't know	18 (7)	10 (7.3)	-

Table 6 shows that only 41.8% and 52.5% girls in rural and urban respectively were aware that uterus is the source of menstrual bleeding and 31.6% girls in rural and 19.7% girls in urban were not aware of the source of menstrual bleeding. This difference was found to be statistically significant ($\chi^2 = 9.412$; p value= 0.024, df-3). About the frequency of menstrual cycle, 89.1% and 91.2% girls in rural and urban respectively were aware that menstruation occurs every month. Regarding the association of menstruation with pregnancy, 86.7% and 84.7% of the girls in rural and urban area respectively were aware that menstruation does not occur during pregnancy. However this was not statistically significant ($\chi^2 = 0.464$; p value=0.793, df=2).

The mean knowledge score was 3.28 ± 0.993 in rural and 3.49 ± 1.058 in urban. However there was no statistically significant difference between the mean score in rural and urban (t=1.9; p value= 0.050).

Table 7: Comparison of overall knowledge about menstruation in rural and urban areas

Knowledge	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
Poor	48 (18.75)	29 (21.17)	14.504
Fair	110 (42.97)	33 (24.09)	(0.001)*
Good	98 (38.28)	75 (54.74)	

Table 7 compares overall knowledge about menstruation in rural and urban. It shows that 38.28% and 54.74% girls in rural and urban respectively had good knowledge about menstruation, which was statistically significant ($\chi^2 = 14.504$; p value=0.001; df= 2).

Table 8: Attitude of adolescent girls towards menarche

Variables	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)	
What do you feel about me	enstruation?			
As debilitating/bothersome	63 (24.6)	36 (26.28)	0.1318	
As natural process	193 (75.4)	101 (73.72)	(0.71)	
Do you believe that one sho	ould follow restri	ctions during men	struation?	
Yes	69 (27)	39 (28.5)	0.102 (0.74)	
No	187 (73)	98 (71.5)		
Do you believe that one should avoid certain foods during menstrual				
cycles?				
Yes	114 (44.53)	84 (61.3)	10.054	
No	142 (55.47)	53 (38.7)	(0.001)*	

Table 8 describes adolescent girls' attitude towards menarche. Menstruation was believed to be bothersome by 24.6% girls in rural and 26.28% girls in urban. Regarding the restrictions during menstruation, 73% girls in rural and 71% girls in urban believed that a girl need not follow restrictions during menstruation. Also 44.53% girls in rural and 61.3% girls in urban believed that one should avoid eating certain foods during menstruation and this was found to be statistically significant ($\chi^2 = 10.054$, p value=0.001).

Table 9: Comparison of overall attitude score towards menstruation in rural and urban areas

	Rural	Urban	Chi square
Attitude	(N= 256)	(N=137)	(P value)
	Frequency (%)	Frequency (%)	
Unfavorable	55 (21.48)	49 (35.77)	9.354 (0.002)*
Favorable	201 (78.52)	88 (64.23)	

Table 9 shows the comparison of overall attitude among adolescent girls towards menstruation. Attitude was found to be favorable among 78.52% girls in rural and 64.23% girls in urban. This was statistically significant ($\chi^2 = 9.354$, p value=0.002). The mean attitude score was 2.04 ±0.791 in rural and 1.85± 0.812 in urban and this difference was found to be statistically significant (t=2.275; p value=0.023).

Table 10: Pattern of menstruation among study participants

	Rural	Urban	Chi square
Variables	(N= 256)	(N=137)	(P value)
	Frequency (%)	Frequency (%)	
Frequency	<u> </u>		l
Once a month	215 (83.98)	119 (86.9)	
Once in 2-3 weeks	10 (3.91)	4 (2.9)	1.057 (0.786)
Once in 4-5 weeks	6 (2.34)	4 (2.9)	
Others/ Irregular	25 (9.77)	10 (7.3)	
Amount of flow	l		l
Scanty	15 (5.86)	6 (4.38)	11.031
Normal	192 (75)	117 (85.4)	(0.001)*
Excess	49 (19.14)	14 (10.22)	(31332)

Table 10 shows the menstrual pattern among adolescent girls. The length of menstrual cycle was reported to be one month in 83.98% girls in rural and 86.9% girls in urban. Regarding the flow, 75% girls in rural and 85.4% girls in urban reported to have normal flow of menstruation, which was statistically significant ($\chi^2=11.031$; p value=0.001; df= 2).

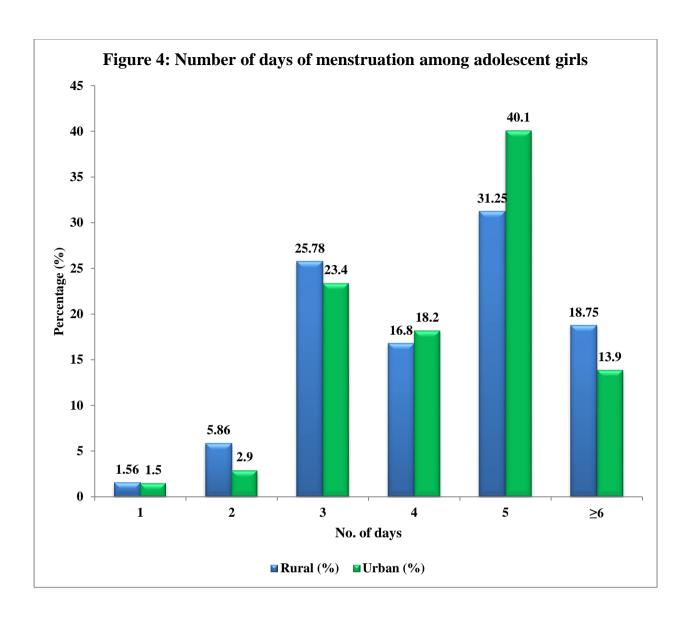


Figure 4 portrays number of days of menstrual cycle among adolescent girls. Among 31.25% girls in rural and 40.1% girls in urban, the number of days of menstrual flow was 5 days. The average number of days of menstrual flow in rural was 4.38±2.155 and in urban, it was 4.34±1.153. However it was not statistically significant (t=0.201; p value= 0.841).

Table 11: Premenstrual/ Menstrual symptoms experienced by study participants

Premenstrual/ menstrual symptoms	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
No symptoms	70 (27.34)	20 (14.6)	
Present	186 (72.66)	117 (85.4)	8.21 (0.001)*

Table 11 explains that 72.66% girls in rural and 85.4% girls in urban experienced premenstrual/ menstrual symptoms. This difference was statistically significant ($\chi^2 = 8.21$; p value= 0.001; df=1).

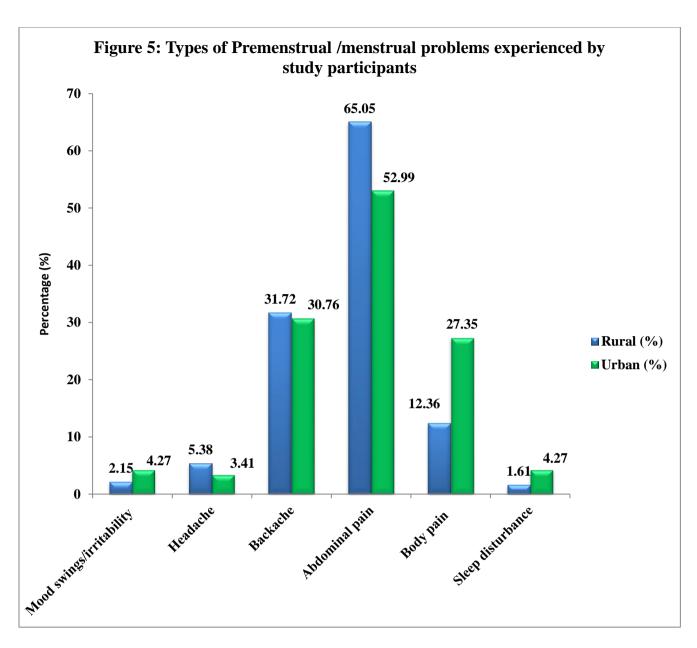


Figure 5 displays types of premenstrual/menstrual problems experienced by adolescent girls. The most common problem was abdominal pain (65.05% in rural and 52.99% in urban), followed by backache (31.72% in rural and 30.76% in urban) and body pain (12.76% in rural and 27.35% in urban).

Table 12: Menstrual hygiene practices among adolescent girls

	Rural	Urban	Chi square		
Variables	(N= 256)	(N=137)	(P value)		
	Frequency (%)	Frequency (%)			
Type of absorbent					
Sanitary pads	256 (100)	137 (100)			
Bathing daily during n	Bathing daily during menstruation				
Yes	255 (99.6)	136 (99.3)	0.2055		
No	1 (0.4)	1 (0.7)	(0.650)		
Washing genitalia during menstruation					
Water only	45 (17.58)	27 (19.71)	0.270		
Water and soap	211 (82.42)	110 (80.29)			

Table 12 shows menstrual hygiene practices among adolescent girls. All the girls, both in rural and urban used sanitary pads. Almost 99.6% of the girls in rural and 99.3% of the girls in urban took bath daily during menstruation. Regarding the cleaning of genitalia, 82.42% girls in rural and 80.29% girls in urban washed the genitalia with soap and water daily during menstruation, which however was not significant statistically.

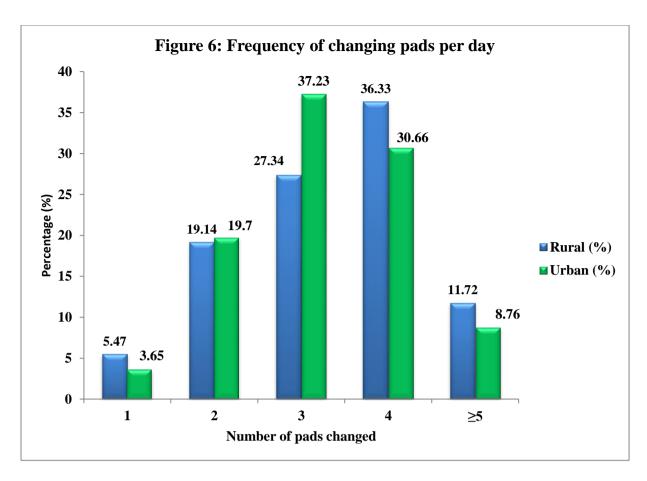


Figure 6 displays number of pads changed per day by the study participants. In rural, 36.33% girls changed 4 pads per day, whereas in urban, 37.23% changed 3 pads per day. The mean number of pads changed in rural was 3.30 ± 1.084 and in urban, it was 3.15 ± 0.977 . There was no statistically significant difference in number of pads changed in rural and urban (t=1.329; p value = 0.185).

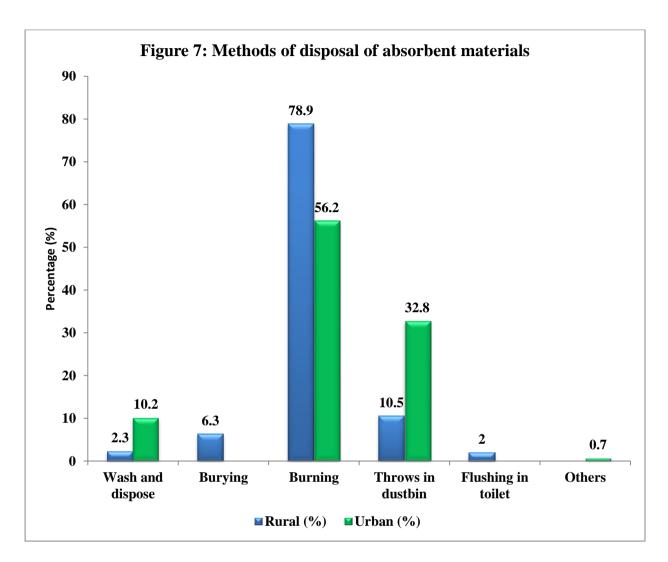


Figure 7 present the methods of disposal of absorbent materials practiced by the adolescent girls. Burning was the most common method practiced in rural (78.9%) followed by throwing in dustbin (10.5%), burying (6.3%), washing and disposing (2.3%) and flushing in toilet (2%). In urban, the methods of disposal were burning (56.2%), throwing in dustbin (32.8%), washing and disposing (10.2%).

Table 13: Menstrual practice score among the study participants

Overall Practice	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
Good practice	160 (62.5)	90 (65.69)	0.393 (0.531)
Inadequate practice	96 (37.5)	47 (34.31)	

Table 13 shows menstrual hygiene score in rural and urban areas. Good hygienic practices (changing \geq 3 absorbents/day, using disposable sanitary pads or clean cloth, took bath daily, cleaned their external genitalia with soap and water daily during menstruation) were followed by 62.5% girls in rural and 65.69% girls in urban. The difference was not statistically significant (χ^2 =0.393; p value =0.531; df=1).

Table 14: School absenteeism during menstruation among the adolescent girls

School absenteeism	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
No	217 (84.77)	106 (77.37)	3.332 (0.067)
Yes	39 (15.23)	31 (22.63)	

Table 14 compares school absenteeism during menstruation in rural and urban areas. Absenteeism during menstruation was reported by 15.23% girls in rural and 22.63% girls in urban, which was not statistically significant.

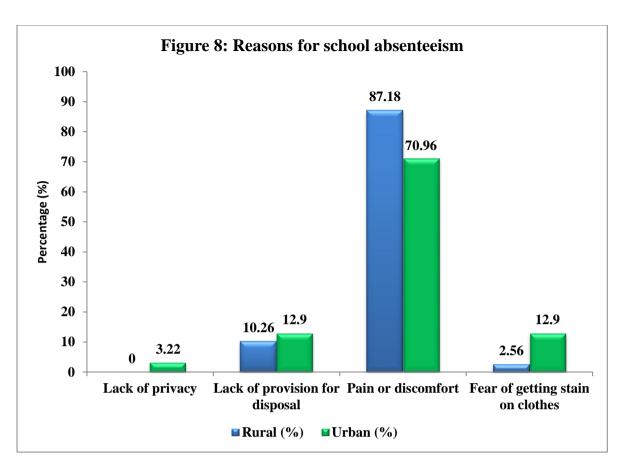


Figure 8 displays reasons for school absenteeism among the adolescent girls. Among the 39 (15.23%) girls who reported absenteeism in rural and 31 (22.63%) girls in urban, pain or discomfort (87.18% in rural and 70.96% in urban) was the most common reason.

Table 15: Changing pads at school by the adolescent girls

Changing pads at school	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
Yes	242 (94.5)	117 (85.4)	9.412 (0.002)*
No	14 (5.5)	20 (14.6)	

Table 15 shows the practice of changing pads at school. At school, 94.5% girls from rural and 85.4% girls from urban changed the pads, which was significant. ($\chi^2 = 9.412$; p value= 0.002, df=1).

Table 16: Restrictions practiced during menstruation in rural and urban areas

Restrictions	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
No restrictions	35 (13.7)	36 (26.3)	9.580 (0.002)*
Restrictions practiced	221 (86.3)	101 (73.72)	

Table 16 depicts restrictions followed by adolescent girls during menstruation. Restrictions were practiced by 86.3% girls in rural and 73.72% girls in urban areas. This difference was significant statistically (χ^2 =9.580, p value-0.002).

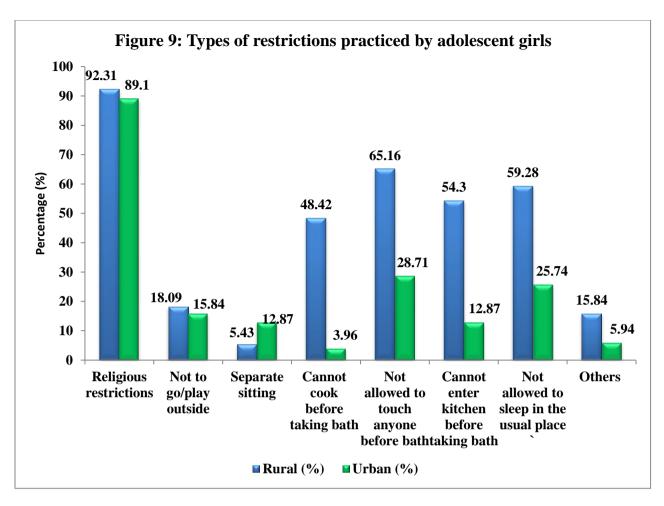


Figure 9 shows types of restrictions practiced by adolescent girls. Among the 221 (86.3%) adolescent girls who practiced restrictions in rural, 92.31% were not allowed to attend religious restrictions, 65.16% were not allowed to touch anyone before taking bath, 59.28% were not allowed to sleep in the usual place, 54.3% were restricted from entering kitchen before taking bath, 48.42% were not allowed to cannot cook before taking bath. The other restrictions (15.84%) were: not allowed to touch plants or to feed animals. Among the 101 (73.72%) girls who practiced restrictions in urban, 89.1% were not allowed to participate in religious activities, 28.71% from touching anyone before taking bath and 25.74% were restricted from sleeping in the usual place.

Table 17: Food restrictions practiced by adolescent girls during menstruation

Food restrictions	Rural (N= 256) Frequency (%)	Urban (N=137) Frequency (%)	Chi square (P value)
No food restrictions	135 (52.73)	55 (40.1)	5.663 (0.017)*
Restrictions practiced	121 (47.27)	82 (59.9)	

Table 17 shows food restrictions practiced by adolescent girls. During menstruation, 47.27% of the girls in rural and 59.9% girls in urban area avoided foods such as non vegetarian foods, sweets, papaya, mango and curd. This difference was found to be statistically significant ($\chi^2 = 5.663$, p value= 0.017).

Table 18: Association of religion with restrictions practiced

		Rest	Chi square	
Residence	Religion	Practiced n (%)	Not practiced n (%)	(P value)
	Hindu	212 (95.93)	10 (28.57)	
Rural	Muslim	7 (3.17)	0	159.4
(N=256)	Christian	2 (0.9)	25 (71.43)	$(0.000)^*$
	Total	221 (86.32)	35 (13.67)	
	Hindu	88 (87.13)	17 (47.22)	
Urban	Muslim	6 (5.94)	1 (2.78)	33.013
(N=137)	Christian	7 (6.93)	18 (50)	$(0.000)^*$
	Total	101 (73.72)	36 (26.28)	

Table 18 depicts association of restriction with religion among girls living in rural and urban. In both rural and urban, restrictions were higher among Hindus than other religions, which was statistically significant (p value 0.000).

Table 19: Association of knowledge with menstrual hygiene practice

	Knowledge	Practice		Chi square
Residence	score	Good	Inadequate	(P value)
		n (%)	n (%)	
	Poor	20 (20.83)	28 (17.5)	
Rural	Fair	46 (47.92)	64 (40)	2 214 (0 200)
(N=256)	Good	30 (31.25)	68 (42.5)	3.214 (0.200)
	Total	96 (37.5)	160 (62.5)	_
	Poor	13 (27.66)	16 (17.78)	
Urban	Fair	11 (23.40)	22 (24.44)	1.970 (0.201)
(N=137)	Good	23 (48.94)	52 (57.78)	1.879 (0.391)
	Total	47 (34.31)	90 (65.69)	

Table 19 describes association of knowledge on menstruation with menstrual hygiene practice in rural and urban. The knowledge score was not significantly associated with practice in rural and urban.

Table 20: Association of attitude with practice

		Practice		Chi square
Residence	Attitude	Good	Inadequate	(P value)
		n (%)	n (%)	
Rural	Unfavorable	30 (31.25)	25 (15.62)	8.684
(256)	Favorable	66 (68.75)	135 (84.38)	(0.003)*
	Total	96 (37.5)	160 (62.5)	,
Urban	Unfavorable	18 (38.3)	31 (34.44)	0.200
(137)	Favorable	29 (61.7)	59 (65.55)	(0.655)
	Total	47 (34.31)	90 (65.69)	

Table 20 depicts association of attitude with menstrual hygiene practice. Favorable attitude was associated with good hygienic practice in rural (χ^2 =8.684, p value=0.003), whereas in urban, there was no such association (χ^2 =0.200; p value=0.655).

CHAPTER 7 DISCUSSION



7. DISCUSSION

7.1 Age at menarche:

In this study, the mean age at menarche in rural was 12.53 ± 1.191 years. Similarly Priya HS⁶⁶ in rural area of Puducherry reported as 12.71 ± 1.05 years. In urban, the mean age at menarche was 11.98 ± 1.095 years, which was similar to 12.1 ± 1.5 years as reported by Seenivasan P⁵⁹ in Chennai. Nayak S⁴⁶ reported as 13.13 ± 1.046 years in urban areas of Jabalpur, Madhya Pradesh. Davis J² in Indonesia reported as 12.4 years.

7.2 Awareness about menstruation before menarche:

In the present study, the awareness before menarche was 50.78% in rural and 43.1% in urban. Barathalakshmi J^{58} in a study among adolescent girls studying in government school in urban field practice area, Chidambaram, Tamil Nadu reported as 28.2% and Ramachandra K^{43} in urban area of Bangalore reported as 33.27% which was lower than the present study while Jothy K^{60} in rural settings of Cuddalore, reported as 71.8%. Siabani²⁹ in Kermanshah city in Iran reports as 78% which was higher.

7.3 Source of information about menstruation:

In this study, school teachers were the main source of information in rural (49.23%) and urban (53.22%) followed by mothers (25.84% in rural) and friends (20.97% in urban). On the contrary, Barathalakshmi J^{58} in urban area of Chidambaram report, mothers and elder sisters were the main source of information (38.2%). Devi RU^{61} in rural Kancheepuram reported, mothers

(57.69%) were the first source followed by friends (23.08%) and teachers (12.82%). Sharma ML³⁸ in an urban area of Punjab reported as mother or elder sister (74.6%) followed by friends (11.11%) and teachers (7.95%). Jogdand K⁴² in an urban slum, Guntur report, mothers (61.29%) were the first source followed by teachers (13.98%) and friends (22.58%). Siabani S²⁹ in a city in Iran report, the source as mothers (37.4%), teachers (16.1%) and friends/ peers (14.8%).

7.4 Knowledge about menstruation:

About the physiological nature of pregnancy, in the present study 28.12% and 39.42% of the girls in rural and urban areas respectively were aware of menstruation as a physiological process, while Kumar P⁵⁷ in Uttar Pradesh found that 66.2% girls in rural and 74.3% girls in urban were aware which was higher than the present study. In an urban area at Coimbatore, Iswarya S⁶⁴ reported that 88% girls were that menstruation was a physiological process, while in a rural area at Telengana, Chauhan P⁴⁹ revealed that only 18.6% were aware, which was lesser than this study. Upashe SP³⁰ in a study among adolescent girls residing in a town in Western Ethiopia reported that 76.9% were aware.

In context of source of menstrual bleeding, 41.8% girls in rural and 52.5% in urban were aware that it was uterus. Kumar P⁵⁷ in Uttar Pradesh 24.3% and 41.9% of the girls in rural and urban respectively were aware that uterus was the source which was lower than the present study. On the contrary,

Iswarya S^{64} found that 92.5% girls studying in a school in urban area, Coimbatore were aware of uterus as the organ from where bleeding occurs, which is higher than the current study. While Fehintola FO^{28} in a city in Nigeria and Chauhan P^{49} in a rural area of Telengana reported that only 22.37% and 11.9% girls respectively reported uterus as the source.

About the ideal age at menarche, Yadav RN³⁶ reported that 44% girls in rural areas of Nepal were aware of ideal age at menarche where as in this study, 82.43% girls in rural and 80.3% girls in urban were aware. In the present study, 89.1% girls from rural and 91.2% girls from urban were aware that menstruation occurs every month. Similar result was reported by Iswarya S⁶⁴ in Coimbatore, where 93% girls in urban were aware of the frequency of menstruation as once a month.

Overall, 38.28% girls in rural, 54.74% girls in urban had good knowledge about menstruation, 42.97% girls in rural, 24.09% girls in urban had fair knowledge and 18.75% in rural, 21.17% in urban had poor knowledge on menstruation while Siabani S²⁹ in a city in Iran reported that 63.7% had poor knowledge, 30.8% had fair knowledge and only 1.6% had good knowledge and Dillu R⁵⁴, Haryana reported that 11% girls in urban had poor knowledge, 81% had fair knowledge and 8% had good knowledge about menstruation which was lower than the present study.

7.5 Attitude towards menstruation:

Menstruation was believed to be bothersome by 24.6% girls in rural and 26.28% girls in urban in this study, while Kumar P⁵⁷, Uttar Pradesh reported that 48.1% girls in rural and 40.5% girls in urban believed as bothersome. Regarding the restrictions during menstruation, 73% and 71% girls in rural and urban respectively in the present study felt that a girl need not follow restrictions, whereas in Andhra Pradesh Savanthe AM⁴⁷ reported that 84.1% girls in urban believed that one should follow religious restrictions. Another researcher, Adhikari P³² in rural area of Nepal reported that 70.7% adolescent girls believed they should not go to school during menstruation, 87.3% felt that they should sleep in separate room and all the girls believed that one should not cook food during menstruation. In the present study, 44.53% in rural and 61.3% in urban believed that certain foods should be avoided during menstruation. Similarly in Andhra Pradesh, Savanthe AM⁴⁷ reported that adolescent girls in urban believed in avoiding curd (52.8%) and non vegetarian foods (34.7%).

7.6 Menstrual pattern:

In this study, normal menstrual flow was reported by 75% girls in rural and 85.4% girls in urban. Similarly, Ali TS¹⁷ in urban Karachi, Pakistan reported that 70% girls had normal menstrual flow. The number of days of menstrual flow was 5 days in 31.25% girls in rural and 40.1% girls in urban in this study, while Jogdand K⁴² in a slum in Guntur reported 15.96% girls had blood flow for more than 5 days. In another study, Devi RU⁶¹ in a rural area in

Kancheepuram, 20% girls reported having menstrual flow for more than 5 days.

7.7 Problems during menstruation:

In this study, menstrual or premenstrual symptoms were experienced by 72.66% girls in rural and 85.4% girls in urban. Abdominal pain was experienced by 65.05% girls in rural and 52.99% in urban. Similarly in Tamil Nadu, Jothy K⁶⁰ in rural areas of Cuddalore, Barathalakshmi J⁵⁸ in urban Chidambaram and Priya SS⁶² in rural area of Salem reported that 78.8% and 75.6% and 94.6% girls respectively experienced abdominal pain. In Indian context, Agarwal N⁴⁰ reported that 59.7% girls in a rural area in Chhattisgarh had abdominal pain and Kumar K⁵³ in Bihar reported 79.5% girls in rural area had abdominal pain. Problems during menstruation were reported by adolescent girls in other countries. Alosaimi JA²⁶ in a city in Saudi Arabia reported that 57.6% experienced abdominal pain.

7.8 Menstrual hygiene practice:

All the girls in this study (rural and urban) reported that they used sanitary pads only which was considered as one of the good hygienic practice. Similarly Iswarya S⁶⁴ in an urban area in Coimbatore reported 100% sanitary pads usage among adolescent school girls. Barathalakshmi J⁵⁸ in urban Chidambaram and Seenivasan P⁵⁹ in urban Chennai, Tamil Nadu reported sanitary pads usage among 90.5% girls and 92.6% girls respectively. In contrast, Devi RU⁶¹ showed that only 50% rural girls in Kancheepuram used

sanitary pads. In other states, Kumar P⁵⁷ in Uttar Pradesh reported sanitary pads usage in 35.1% rural and 62.5% urban girls. Mohanty S³⁹ in urban slums of Odisha, Ramachandra K in urban Bangalore K⁴³, Kapoor G⁴⁴ in rural Jammu and Kumar K⁵³ in rural Bihar reported pad usage as 56.8%, 69%, 59% and 70% respectively. Whereas Chauhan P⁴⁹ in rural Telangana reported 97% sanitary pads usage among adolescent girls.

In the context of changing pads per day, 36.33% girls in rural changed 4 pads per day and 37.23% in urban changed 3 pads per day. Fehintola FO²⁸ in a city in Nigeria reported that 19% changed the materials three or more times. Mohanty S³⁹ in urban slums of Odisha reported that 20% girls changed the absorbent only once a day. In Telengana, Chauhan P⁴⁹ reported that 52% girls in rural changed twice and 43.6% changed more than twice a day. Parle J⁵² in rural Maharastra reported that 49.2% girls changed the pads twice daily. Iswarya S⁶⁴ in study at urban Coimbatore reported that 61.5% girls changed 2-3 pads per day and 38.5% changed more than 4 pads per day.

In the present study good hygienic practices were found to be followed by 62.5% girls in rural, 65.69% girls in urban and inadequate practice was found in 37.5% in rural, 34.31% urban while Barathalakshmi J⁵⁸ in urban Chidambaram, Tamil Nadu reported that only 37.7% girls were following good hygienic practices. Parle J⁵² in rural Maharashtra reported that 47.1% followed good practice and 52.8% girls had poor practice and during menstruation. In a city in Iran, Siabani S²⁹ reported poor practice among 81% girls and in a study

by Upashe SP³⁰, in a town in Western Ethiopia 39.9% girls followed good practices on menstrual hygiene.

In this study, the methods of disposal of used absorbent material were burning (78.6% in rural and 56.2% in urban), throwing in dustbin (urban 10.5%, urban 32.8%), washing and disposing (urban 10.2%, rural 2.3%), burying (rural 6.3%) and flushing in toilet (urban 2%). Similarly, Kumar P⁵⁷ in Uttar Pradesh reported that 47.8% girls in rural and 33.5% girls in rural disposed by burning. Thakre SB⁵⁶ in Nagpur reported that 52.2% girls disposed by burning (rural 60.96%, urban 46.89%), 39.79% disposed along with the routine waste and 6.72% used other methods of disposal. Deepa S⁶⁵ in a study at rural areas of Coimbatore, Erode and Tiruppur reported that 48.5% practiced burying as a method of disposal. Kapoor G⁴⁴ in rural Jammu reported that 70.45% were throwing with routine waste and 7.58% burnt the used material.

7.9 School absenteeism during menstruation:

Absenteeism during menstruation was observed in 15.23% girls in rural and 22.63% girls in urban in the present study. In contrast, Kumar P in Uttar Pradesh reported as 44.7% in rural and 40.9% in urban. Alosaimi JA²⁶ in Saudi Arabia reported 27.2% absenteeism and Chauhan P⁴⁹ reported 32.7% absenteeism in rural Telangana. Varghese MM⁶³ in Porur, Chennai urban reported 5.4% absenteeism while Parameaswari PJ⁶⁷ reported 30.1% in urban Chennai, Tamil Nadu.

7.10. Restrictions practiced during menstruation:

Restrictions during menstruation were practiced by 86.3% girls in rural and 73.72% girls in urban areas. Restriction regarding religious activities was the most commonly practice, rural (92.31%) and urban (89.1%). Similar results were shown by Barathalakshmi J⁵⁸ in urban Chidambaram where 98.6% were not allowed to visit temple and Parle J⁵² in rural Maharashtra where 88.9% girls were prevented from visiting holy places. On the contrary, Fehintola FO²⁸ in a city in Nigeria reported that 45.75% girls were restricted from attending celebration and festivities.

Regarding food restrictions, 47.27% girls in rural and 59.9% girls in urban areas avoided foods such as non vegetarian foods, sweets, papaya, mango and curd, whereas Fehintola FO²⁸ in a city in reported that 17.92% restricted certain foods during menstruation. In a study at Chennai by Varghese MM⁶³, food restriction was reported by 69.3% girls. Jothy K⁶⁰ in rural Cuddalore reported that 49.7% avoided certain foods such as sour foods, papaya, radish and non-vegetarian dishes during menstruation. There was a significant difference in restrictions practiced in rural and urban areas. Also, the restrictions practiced were higher among Hindus (rural 95.5%, urban 83.81%) than other religions. This shows that religion was significantly associated with restrictions both in rural and urban areas. Varghese MM⁶³, Chennai also reported that religious restrictions were more common among Hindus. This may be because restrictions are believed to be part of religion in India.

Also in the current study, good knowledge and favorable attitude was not associated with good menstrual hygiene practice.

CHAPTER 8 SUMMARY



8. SUMMARY

This community based cross sectional study was conducted to assess and compare the menstrual hygiene practices among adolescent girls in rural and urban field practice area of Karpaga Vinayaga Institute of Medical Sciences & Research Centre in Kancheepuram district with 393 adolescent girls (rural 256, urban 137) aged 11-19 as participants. It was found that,

- The mean age at menarche in rural and urban was 12.53±1.191 years and 11.98±1.095 years respectively.
- Awareness about menstruation before menarche was 50.78% among girls in rural and 43.1% in urban. Among them, the sources of information were school teachers (49.23% rural, 53.22% urban), followed by mothers (25.84% in rural) and friends (20.97% in urban).
- Good knowledge about menstruation was observed in 38.28% girls in rural and 54.74% girls in urban.
- Favorable attitude towards the physiological nature of menstruation and restrictions imposed was reported by 78.52% girls in rural and 64.23% girls in urban.
- The menstrual hygiene practices were good in 62.5% girls in rural and 65.69% girls in urban.
- School absenteeism during menstruation was 15.23% in rural and 22.63% in urban. The main reason for absenteeism was pain or discomfort (rural 87.18%, urban 70.96%).

- Restrictions during menstruation were practiced by 86.3% girls in rural and 73.72% girls in urban. Religious restriction was the most common practice (rural 92.31%, urban 89.1%).
- Restrictions of foods like non vegetarian, sweets, etc were practiced by 47.27% girls in rural and 59.9% girls in urban.
- Restrictions were more commonly practiced by Hindus than girls belonging to other religions (rural 95.5%, urban 83.81%).

CHAPTER 9 CONCLUSION



9. CONCLUSION

The age at menarche was earlier in urban and the overall knowledge about menstruation was better in girls residing in urban. Good menstrual hygiene practices were better in urban. Surprisingly, awareness about menstruation before menarche and the attitude towards physiological nature of menstruation and restrictions imposed was more favorable in rural than urban. Although restrictions were commonly practiced among girls in both areas, it was more in rural. Restrictions were more common among Hindus than girls belonging to other religion in both areas.

As a result of urbanization and increased accessibility to information, the girls in rural are becoming on par with urban girls, which is reflected on the awareness of menstruation before menarche and the favorable attitude towards restrictions imposed on the adolescent girls.

CHAPTER 10 REFERNCES



10. REFERENCES

- World Health Organization. Programming for adolescent health and development. WHO Technical Report Series No.886, 1996:2.
- 2. Anthony L. The state of the world's children 2011-adolescence: an age of opportunity. United Nations Children's Fund (UNICEF); 2011.
- World Health Organization. Coming of age- Adolescent health. 2019.
 Available at https://www.who.int/health-topics/adolescents/coming-of-age-adolescent-health. Accessed on 18th July 2019.
- Ravi R, Shah PB, Edward S, Gopal P, Sathiyasekaran BW. Social impact of menstrual problems among adolescent school girls in rural Tamil Nadu. International journal of adolescent medicine and health. 2017; 30(5).
- Planning commission. Report of the working group on adolescents for the tenth five year plan. 2001. Accessed on 18th July, 2019. Available at www.planningcommission.nic.in/aboutus/committee/workgroup/wg_ad olcnts.pdf
- 6. Garg G, Goyal S, Gupta S. India Moves Towards Menstrual Hygiene: Subsidized Sanitary Napkins for Rural Adolescent Girls—Issues and Challenges. Matern Child Health J.2012; 16:767–774.
- 7. Ahuja M. Age of menopause and determinants of menopause age: A PAN India survey by IMS. J Mid-life Health. 2016;7:126-31.
- 8. Lysaght P. UNICEF. Menstruation matters. Available at https://blogs.unicef.org/blog/menstruation matters-period/. Accessed on

- 18th July 2019
- UNICEF. Facts facts: Nine things you didn't know about menstruation.
 Available at https://www.unicef.org/press-releases/fast-facts-nine-things-you-didnt-know-about-menstruation. Accessed on 18th July 2019
- 10. Normal menstruation. Clevel and Clinic. Available at https://my.clevelandclinic.org/health/articles/10132-normalmenstruation. Accessed on 18th July 2019
- 11. Sommer M. WASH in Schools Empowers Girls' Education: Proceedings of the Menstrual Hygiene Management in Schools Virtual Conference 2014. Accessed on 29th July 2019
- 12. Kansal S, Singh S, Kumar A. Menstrual hygiene practices in context of schooling: A community study among rural adolescent girls in Varanasi. Indian J Community Med 2016; 41:39-44.
- 13. Dasgupta A, Sarkar M. Menstrual hygiene: How hygienic is the adolescent girl? Indian J Community Med. 2008; 33(2):77-80.
- 14. Ram R, Bhattacharya SK, Bhattacharya K et al. Reproductive tract infection among female adolescents. Indian journal of Community Medicine. 2006;31(1):32-33.
- 15. Adolescent Girls in India Choose a Better Future: An Impact Assessment. The Centre for Development and Population Activities (CEDPA) September 2001.
- 16. WASH United-Menstrual hygiene management. http://www.wash-united.org/our-work/issues/menstrul-hygiene-management/articles/our-

- work-issues-menstrual-hygiene-management accessed on 29th July 2019.
- 17. Ali TS, Rizvi SN. Menstrual knowledge and practices of female adolescents in urban Karachi, Pakistan. Journal of adolescence. 2010;33(4):531-41.
- 18. WASH in schools. Menstrual hygiene management. Menstrual hygiene matters. Nov 2012. Available at https://www.washinschools.info Accessed on 18th July 2019
- 19. Etymology dictionary. Available at https://www.etymonline.com/word/adolescent Accessed on 18th July 2019
- 20. Tamil Nadu Youth Info India. Available at www.youthinfo.org/profiles/files/profiles/en/1/Youth%20Info_Tamil%2 0Nadu_IND033.pdf. Accessed on June 2019.
- 21. Tabers medical dictionary "definition of menstruation". Available at www.tabers.com
- 22. Abdelmoty HI, Youssef MA, Abdel-Malak K, Hashish NM, Samir D, Abdelbar M, et al. menstrual patterns and disorders among secondary school adolescents in Egypt. A cross sectional survey. BMC women's health. 2015;15(1):70.
- 23. Davis J, Macintyre A, Odagiri M, Suriastini W, Cordova A, Hugget C, et al. Menstrual hygiene management and school absenteeism among adolescent students in Indonesia: evidence from a cross-sectional

- school-based survey. Tropical Medicine and International Health. 2018;23(12):1350-63.
- 24. Rigon F, De Sanctis V, Bernasconi S, Bianchin L, Bona G, Bozzola et al. Menstrual pattern and menstrual disorders among adolescents: an update of the Italian data. Italian Journal of Pediatrics. 2012;38(1):38
- 25. Kazama M, Maruyama K, Nakamura K. Prevalence of dysmenorrhea and its correlating lifestyle factors in Japanese female junior high school students. The Tohoku Journal of experimental medicine. 2015;23(2):107-13
- 26. Alosaimi JA. Saudi intermediate school girls' knowledge, attitudes and practices of puberty in Taif, Saudi Arabia. Int J Med Sci Public Health. 2014;3:196-202.
- 27. Ramathuba DU. Menstrual knowledge and practices of female adolescents in Vhembe district, Limpopo Province, South Africa. Curationis. 2015;38(1):1-6
- 28. Fehintola FO, Fehintola AO, Aremu AO, Idowu A, Ogunlaja OA, Ogunlaja IP. Assessment of knowledge, attitude and practice about menstruation and menstrual hygiene among secondary high school girls in Ogbomoso, Oyo state, Nigeria. Int J Reprod Contracept Obstet Gynecol. 2017;6(5):1726-32.
- 29. Siabani S, Charehjow H, Babakhani M. Knowledge, Attitudes and Practices (KAP) Regarding Menstruation among School Girls in West of Iran: A Population Based Cross-Sectional Study. Int J Pediatr. 2018;

- 6(8): 8075-85.
- 30. Upashe SP, Tekelab T, Mekonnen J. Assessment of knowledge and practice of menstrual hygiene among high school girls in Western Ethiopia. BMC women's health. 2015;15(1):84.
- 31. Wijesiri HS, Suresh TS. Knowledge and attitudes towards dysmenorrhea among adolescent girls in an urban school in Sri Lanka. Nursing and health sciences. 2013;15(1);58-6.
- 32. Adhikari P, Kadel B, Dhungel SI. Knowledge and practice regarding menstrual hygiene in rural adolescent girls of Nepal. Kathmandu Univ Med J (KUMJ) 2007;25(3):217-220.
- 33. Santina T, Wehbe N, Ziade FM et. al. Assessment of beliefs and practices relating to menstrual hygiene of adolescent girls in Lebanon. Int J Health Sci Res. 2013;3(12):75-88.
- 34. Haque SE, Rahman M, Itsuko K, Mutahara M, Sakisaka K. The effect of a school-based educational intervention on menstrual health: an intervention study among adolescent girls in Bangladesh. BMJ Open. 2014;4(7):e004607.
- 35. Alam MU, Luby SP, Halder AK, Islam K, Opel A, Shoab AK, et al. Menstrual hygiene management among Bangladeshi adolescent schoolgirls and risk factors affecting school absence: results from a cross-sectional survey. BMJ Open. 2017;7(7):e015508.
- 36. Yadav RN, Joshi S, Poudel R, Pandeya P. Knowledge, Attitude, and Practice on Menstrual Hygiene Management among School

- Adolescents. J Nepal Health Res Counc 2017;15(37):212-6.
- 37. Boosey R, Prestwich G, DeaveT. Menstrual hygiene management amongst schoolgirls in the Rukungiri district of Uganda and the impact on their education: a cross-sectional study. Pan African Medical Journal. 2014;19.
- 38. Sharma ML, Johal KK, Malhotra V. To Study The Knowledge, Attitude And Practices Regarding Menstrual Hygiene And Restrictions Imposed Upon Them During Menstruation in The Adolescent Girls Studying in A Government And A Private School in Sahibzada Ajit Singh Nagar (Mohali City) In Punjab A Comparison Pilot Study. IOSR Journal of Dental and Medical Sciences.2017;16(8):30-37
- 39. Mohanty S, Panda M, Tripathi RM. Assessment of menstrual health among school going adolescent girls of urban slums of Berhampur, Odisha, India: a cross-sectional study. Int J Community Med Public Health 2016; 3:3440-4.
- 40. Agarwal N, Soni N, Singh SP, Soni GP. Knowledge and practice regarding menstrual hygiene among adolescent girls of rural field practice area of RIMS, Raipur (C. G.), India. Int J Reprod Contracept Obstet Gynecol 2018;7:231721.
- 41. Sharma S, Mehra D, Kohli C, SinghMM. Menstrual hygiene practices among adolescent girls in a resettlement colony of Delhi: a cross-sectional study. Int J Reprod Contracept Obstet Gynecol. 2017;6(5):1945-51.

- 42. Jogdand K, Yerpude P. A community based study on menstrual hygiene among adolescent girls. Indian Journal of maternal and child health. 2011;13(3):1-6.
- 43. Ramachandra K, Gilyaru S, Eregowda A, Yathiraja S. A study on knowledge and practices regarding menstrual hygiene among urban adolescent girls. Int J Contemp Pediatr.2016;3:142-5.
- 44. Kapoor G, Kumar D. Menstrual hygiene: knowledge and practice among adolescent school girls in rural settings. Int J Reprod Contracept Obstet Gynecol 2017;6:959-62.
- 45. Katiyar K, Chopra H, Garg SK, Bano T, Jain S, Kumar A. A KAP study of menstrual problems in adolescent females in an urban area of Meerut. Indian Journal of Community Health. 2013;25(3):217-20
- 46. Nayak S, Toppo N A, Tomar S P, Kasar P K, Tiwari R. A study on practices regarding menstrual hygiene among adolescent girls of urban areas of Jabalpur District. Int J Med Sci Public Health 2016;5(11):2355-57.
- 47. Savanthe AM, Nanjundappa VH. Menstruation: a cross-sectional study on knowledge, belief, and practices among adolescent girls of junior colleges, Kuppam, Andhra Pradesh. Int J Med Sci Public Health 2016;5:22-27.
- 48. Kanyadi S, Metgud CS. Menstruation: gap in knowledge, belief and practice among adolescent girls in an urban area of Belagavi. Int J Community Med Public Health. 2017;4(10):3640-44.

- 49. Chauhan P, Shaik RA, Anusha DVB, Sotala M. A study to assess knowledge, attitude, and practices related to menstrual cycle and management of menstrual hygiene among school-going adolescent girls in a rural area of South India. Int J Med Sci Public Health 2019;8(2):114-119.
- 50. Dambhare DG, Wagh SV, Dudhe JY. Age at menarche and menstrual cycle pattern among school adolescent girls in Central India. Global journal of health science. 2012;4(1):105.
- 51. Dube S, Sharma K. Knowledge, Attitude and Practice Regarding Reproductive Health among Urban and Rural Girls: A Comparative Study. Ethno Me.2012; 6(2): 85-94.
- 52. Parle J, Khatoon Z. Knowledge, attitude, practice and perception about menstruation and menstrual hygiene among adolescent school girls in rural areas of Raigad district. Int J Community Med Public Health. 2019;6(6):2490-2497.
- 53. Kumar K, Datta A, Bandyopadhyay A. Knowledge, Problems and Practices of Adolescent Girls during Menstruation. Indian Med Gazette. 2015;214:85-8.
- 54. Dillu R. Study to assess the knowledge regarding menstrual hygiene among adolescent girls of a selected school in Sonepat. International Research Journal of Natural and Applied Sciences. 2017; 4(4):71-78.
- 55. Patle R, Kubde S. Comparative study on menstrual hygiene in rural and urban adolescent. Int J Med Sci Public Health. 2014; 3(2): 129-132.

- 56. Thakre SB, Thakre SS, Reddy M, Rathi N, Pathak K, Ughade S. Menstrual Hygiene: Knowledge and Practice among Adolescent School Girls of Saoner, Nagpur District. Journal of Clinical and Diagnostic Research. 2011; 5(5): 1027-33.
- 57. Kumar P, Gupta SB, Danish I, Nipun A. A Comparative Study of Menstrual Practices among Urban and Rural Adolescent School Girls in Bareilly District, India. Int.J.Curr.Microbiol.App.Sci. 2016; 5(3): 42-46.
- 58. Barathalakshmi J, Govindarajan PK, Ethirajan N, Felix AJW. Knowledge and Practice of Menstrual Hygiene among School Going Adolescent Girls. National Journal of Research in Community Medicine. 2014; 3(2): 138-142.
- 59. Seenivasan P, Priya KC, Rajeswari C, Akshaya CC, Sabharritha G, Sowmya KR, et al. Knowledge, attitude and practices related to menstruation among adolescent girls in Chennai. Journal of Clinical and Scientific Research. 2016;5(3):164-170.
- 60. Jothy K, Kalaiselvi S. Is menstrual hygiene and management an issue for the rural adolescent school girls? Elixir Soc. Sci. 2012; 44: 7223-8.
- 61. Devi RU, Sivagurunathan C, Kumar PM. Awareness about menstrual hygiene among adolescent girls in rural area of Kancheepuram district-Tamil Nadu. Int J Pharm Bio Sci. 2016; 7(1): (B) 267 269.
- 62. Priya SS, Alliratnam AS, Shankar R. Menstrual problems and hygiene among rural adolescent girls of Tamil Nadu-A cross sectional study.

 Indian Journal of Obstetrics and Gynecology Research. 2016;3(2):126-31.

- 63. Varghese MM, James S, Ravichandran L, Sivaprakasam E, Palaniyandi A, Balaji S. Religious restrictions and cultural taboos related to menstruation in adolescent girls: A school-based cross-sectional observational study. Indian J Child Health. 2015;2(4):161-164.
- 64. Iswarya S, Varshini A. Impact of health education on menstrual hygiene: An intervention study among adolescent school girls. Int J Med Sci Public Health 2018;7(6):468-473.
- 65. Deepa S et al. A survey on menstrual health and hygienic sanitation.

 International Journal of Pure and Applied Mathematics.

 2018;118(20):365-69.
- 66. Priya HS, Nandi P, Seetharaman N, Ramya MR, Nishanthini N, Lokeshmaran A. A study of menstrual hygiene and related personal hygiene practices among adolescent girls in rural Puducherry. Int J Community Med Public Health. 2017;4(7):2348-2355.
- 67. Parameaswari PJ, Udayshankar PM, Cynthia S, Vidhyashree MD, Abiselvi, Sultan SI. A School Survey to Assess Menstrual Hygiene Practices Among Teenage Girls in Chennai, India. Middle-East Journal of Scientific Research. 2014; 21(9): 1448-53.
- 68. Pandey VK, Aggarwal P, Kakkar R. Modified BG Prasad's Socio-economic Classification-2018: The need of an update in the present scenario. Indian J Comm Health. 2018; 30, 1: 82-84.

11. ANNEXURES

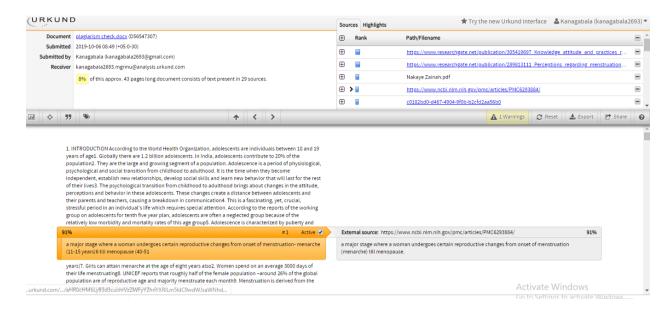


PLAGIARISM ANALYSIS REPORT

URKUNE	
Document	plagiarism check.docx (D56547307)
Submitted	2019-10-06 08:49 (+05:0-30)
Submitted by	Kanagabala (kanagabala2693@gmail.com)
Receiver	kanagabala2693.mgrmu@analysis.urkund.com
	8% of this approx. 43 pages long document consists of text present in 29 sources.

ANNEXURE 1.2

PLAGIARISM SCREENSHOT REPORT



ANNEXURE 1.3

PLAGIARISM ANALYSIS RESULT

(URKUND

Urkund Analysis Result

Analysed Document: plagiarism check.docx (D56547307)

Submitted: 10/6/2019 5:19:00 AM Submitted By: kanagahala2693@gmail.com

Significance:

Sources included in the report:

sujitha may 13 - Copy.docx (D51933264)

ZAINA NAKAYE.pdf (D40273165)

final thesis.docx (D30396951)

Nakaye Zainah.pdf (D36466822) thesisfull.docx (D30696229)

https://www.researchgate.net/

publication/305419697_Knowledge_attitude_and_practices_related_to_menstruation_among_a

dolescent girls in Chennai

https://www.researchgate.net/

publication/289813111_Perceptions_regarding_menstruation_and_Practices_during_menstrual _cycles_among_high_school_going_adolescent_girls_in_resource_limited_settings_around_Bang alore_city_Karnataka_India

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4311354/

https://www.omicsonline.org/open-access/challenges-experienced-by-adolescent-girls-whilemenstruation-in-kathmandu-valley-a-qualitative-study-2161-0711.1000285.php?aid=25564

https://www.researchgate.net/

publication/51225008_'The_girl_with_her_period_is_the_one_to_hang_her_head'_Reflections_on

_menstrual_management_among_schoolgirls_in_rural_Kenya https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6293884/

https://www.researchgate.net/

publication/324390932_Menstrual_Hygiene_Knowledge_and_Practice_among_Adolescent_Girls_

of_Rural_Sabarkantha_District

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4382073/

https://bmjopen.bmj.com/content/7/7/e015508

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2784630/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6286883/ https://www.biorxiv.org/content/10.1101/450007v2.full

https://www.ijcmph.com/index.php/ijcmph/article/download/295/296

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4606849/

https://www.researchgate.net/

publication/273312959 MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS A CR

OSS_SECTIONAL_STUDY

(URKUND

174985cb-af06-4b63-bd09-9489fb9b29f3 06b63e81-b7c7-42d2-827b-27208db7e574 0bbb3e81-b/c7-42d2-82/b-2/208db/e5/4 47f50730-f20d-4285-9859-1206ece287cc ee137776-56c7-4fbd-8476-4b844be91703 013b9504-662f-4183-8c33-5c0070c4e141 9b12820-0561-4a39-8db4-39c8605ffc09 c0182bd0-d467-4904-9f0b-b2cfd2aa56b0 1acb7c51-0aaf-4616-9da7-7bd89d375483 63b3fc85-cde7-41d6-bdc6-e641cdb5d13a

Instances where selected sources appear:

PLAGIARISM CERTIFICATE

This is to certify that this dissertation work titled "MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN RURAL AND URBAN POPULATION OF FIELD PRACTICE AREA OF A TERTIARY CARE TEACHING HOSPITAL, KANCHEEPURAM DISTRICT, TAMILNADU" of the candidate Dr. B. KANAGABALA with Registration Number 201725401 for the award of M.D in the branch of COMMUNITY MEDICINE. I personally verified the urkund.com website for the purpose of Plagiarism Check. I found that the uploaded thesis file contains from introduction to conclusion pages and result shows 8% of plagiarism in the dissertation.

Guide & Supervisor sign with Seal.

INSTITUTIONAL ETHICS COMMITTEE APPROVAL CERTIFICATE

INSTITUTIONAL ETHICAL COMMITTEE

KARPAGA VINAYAGA INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE

MADURANTHAGAM - 603 308

EC Ref. No:94/2017

CERTIFICATE FOR APPROVAL

The Institutional Ethical Committee of Karpaga Vinayaga Institute of Medical Sciences & Research Centre, Maduranthagam reviewed and discussed the application for approval "Menstrual Hygiene Practices among Adolescent Girls in Rural and Urban population of Field Practice Area of a Tertiary Care Teaching Hospital, Kancheepuram District, Tamilnadu" by Dr. Kanagabala B, I PG, Guided by Dr. Roseline Fatima William, Professor and Head, Department of Community Medicine, Karpaga Vinayaga Institute of Medical Sciences & Research Centre, Maduranthagam.

The proposal is APPROVED

The Institutional Ethics Committee expects to be informed about the progress of the study and any changes in the protocol / information / informed consent and asks to be provided a copy of the final report.

Date:04 /12/17

Chairperson, Ethics Committee

ANNEXURE 4 DATA COLLECTION





QUESTIONNAIRE

Menstrual Hygiene Practices among Adolescent Girls in Rural and Urban population of Field Practice Area of a Tertiary Care Teaching Hospital, Kancheepuram District, Tamilnadu (காஞ்சிபுரம் மாவட்டத்தின் மூன்றாம் நிலை பராமரிப்பு மருத்துவமனையின் கள ஆய்வு பணிக்கு உட்பட்ட கிராமப்பற மற்றும் நகர்ப்புற பருவ வயது பெண்களின் மாதவிடாய் கால சுகாதார பழக்கவழக்கங்கள்)

- 1) Name (6山山庁):
- 2) Age (வயது) (years):
- 3) Address ((中岛如月):
- 4) Type of residence (வசிப்பிடம்): 1. Urban 1. Urban (நகரம்)2.Rural (கிராமம்):
- 5) Marital status (திருமண நிலை): 1. Unmarried (திருமணமாகாதவர்) 2. Married (திருமணம்ஆனவர்)
- 6) Education (கல்வி):
- 7) Educational status of father & mother (பெற்றோரின் கல்வித் தகுதி):
- 8) Religion (மதம்): 1. Hindu (இந்து) 2. Muslim (முஸ்லிம்) 3. Christian (கிறிஸ்தவர்) 4. Others (மற்றவை)
- 9) Income of the family (குடும்ப வருமானம்):
- 10) Birth order (பிறந்த வரிசை): 1 2 3 4 ≥5
- 11) Type of family(குடும்ப வகை): 1. Nuclear family(தனி குடும்பம்) 2.Joint family(கூட்டு குடும்பம்) 3. Three generation /Extended family (மூன்று தலைமுறை குடும்பம்)
- 12) Type of the school/college studying: (படிக்கும் நிறுவனம்): 1. Government (அரசு சார்ந்த) 2. Private (தனியார்)
- 13) Toilet facility at house (வீட்டில் கழிப்பறை வசதிகள்): 1.Yes (ஆம்)
- 2.No (இல்லை)
- 14) Toilet facility at place of education (கல்விக்கான இடத்தில் கழிப்பறை வசதி) 1.

15) When did you attain menarche?

எப்போது நீங்கள் பூப்பூ அடைந்தீர்கள்?

Knowledge (அനിഖ)

- 16) Were you aware of menstrual cycle before menarche? 1. Yes 2. No பூப்படைவதற்கு முன் மாதவிடாய் சுழற்சியை நீங்கள் அறிவீர்களா? 1. ஆமாம் 2. இல்லை
- 17)If yes, how did you get to know?

ஆம் எனில் எப்படி அறிந்து கொண்டீர்கள்?

1. ஆசிரியர் 2. தாய் 3. சகோதரி 4.தோழி 5.உறவினர்

- 18) When do you think the girl starts to menstruate? 1. 9 to 11 years 2. 12 to 14 years 3. 15 to 16 4. Others
- பெண்ணின் மாதவிடாய் எப்போது தொடங்கும் என்று நீங்கள் நினைக்கிறீர்கள்?
 - 1. 9 முதல் 11 வயது 2. 12 முதல் 14வயது 3. 15 முதல் 16 வயது 4. மற்றவை.
- 19) What do you think is the cause of menstruation? 1. Normal/physiological process
 - 2. To clean the body or remove dirty fluids 3. For reasons of inner heat
- 4. Sin/curse/supernatural causes 5.Disease 6.Don't know 7.Others மாதவிடாய் ஏற்படுவதற்கான காரணம் என்ன?
 - 1. உடலியல் செயல்முறை. 2. உடலை சுத்தம் செய்ய/அழுக்கு திரவங்களை நீக்க 3. உள் வெப்பம் காரணமாக 4. பாவம்/ சாபம் 5. நோய் 6. தெரியாது 7. மற்றவை
- 20) What do you think is the source of menstrual bleeding?
- 1. Uterus 2.Abdomen 3. Urethra 4. Don't know மாதவிடாய் இரத்தப்போக்கு எந்த உறுப்பிலிருந்து வருகிறது?
 - 1. கருப்பை 2. வயிறு 3.சிறுநீர் வெளியேறும் வழி 4 தெரியாது
- 21) What do you think is the frequency of menstrual cycles? 1. Once a month
- 2. 2-3 weeks 3. 4-5 weeks 4. Others 5. Don't know மாதவிடாய் எத்தனை நாட்களுக்கு ஒருமுறை நிகழும்? 1.ஒரு மாதத்திற்கு 2. 2-3 வாரங்கள் 3. 4-5 வாரங்கள் 4. மற்றவை 5. தெரியாது
- 22) Do you think menstruation occurs during pregnancy? 1. Yes 2.No கர்ப்ப காலங்களில் மாதவிடாய் நிகழுமா? 1. ஆமாம் 2. இல்லை

Attitude (அணுகுமுறை)

- 23) What do you feel about menstruation? 1. As debilitating/bothersome
 - 2. As natural process 3.Others

மாதவிடாய் பற்றி நீங்கள் என்ன நினைக்கிறீர்கள்?

- 1. ஒரு பலவீனமான/தொந்தரவு 2. இயற்கையான நிகழ்வு 3. மற்றவை
- 24) Do you believe that one should follow restrictions during menstruation? 1.Yes 2.No மாதவிடாயின் போது ஒருவர் கட்டுப்பாடுகளை பின்பற்ற வேண்டும் என்று நீங்கள் நம்புகிறீர்களா?Yes (ஆம்) 2. No (இல்லை)
- 25) Do you believe that one should avoid certain foods during menstrual cycles?
- 1.Yes 2.No

மாதவிடாய் காலத்தில் ஏதேனும் உணவு பொருட்களை தவிர்க்க வேண்டும் என்று நீங்கள் நம்புகிறீர்களா?

Practice (பழக்கவழக்கங்கள்)

- 26) How frequently do you get your menstrual cycles?

 1. Once a month
- 2. Once in 2-3 weeks 3. Once in 4-5 weeks 4.Others எத்தனை நாட்களுக்கு ஒருமுறை உங்களுக்கு மாதவிடாய் நிகழும்?
 - 1. மாதத்திற்கு ஒருமுறை 2. 2-3 வாரங்களுக்கு ஒருமுறை3. 4-5 வாரங்களுக்கு ஒருமுறை 4. மற்றவை
- 27) How many days do you get menstrual bleeding?1 2 3 4 5 ≥6 உங்களுக்கு இரத்தப்போக்கு எத்தனை நாட்களுக்கு வரும்? 1 2 3 4 5 ≥6
- 28) What is the amount of flow? 1. Scanty 2. Normal 3.Excess 4. Don't know இரத்தப்போக்கின் அளவு என்ன? 1. போதாத 2. மிதமாக 3. அதிகப்படியான 4. தெரியாது
- 29) Do you experience menstrual/premenstrual symptoms?
 - 1. Mood swings/irritability 2. Headache 3. Backache 4. Abdominal pain
 - 5. Body pain 6. Sleep disturbance (excessive sleep/insomnia) 7. Others
 - 8. No symptoms
- நீங்கள் மாதவிடாய் / முன்கூட்டிய அறிகுறிகளை அனுபவிக்கிறீர்களா?
 - மனநிலை ஊசலாட்டம் / எரிச்சல்
 தலைவலி
 முதுகுவலி
 அடிவயிற்று வலி
 உடல் வலி
 தாக்கத்தில் தொந்தரவு
 மற்றவை 8. அறிகுறிகள்
 இல்லை
- 30) What type of absorbent do you use? 1. Disposable napkin 2. Cloth 3. Others நீங்கள் எவ்வகையான உறிஞ்சி பயன்படுத்துகிறீர்கள்? 1. நாப்கின் (அணையாடை) 2. துணி 3.மற்றவை
- 31) What are the reasons for not using napkins?

 1. Cloth is easily available
- 2. Cloth can be reused 3.Not aware of napkins 4.Don't like to use napkins 5.
 Cloth soaks well 6. Shyness 7. Napkins are costlier 8. Others
 நாப்கின்களைப் பயன்படுத்தாததற்கு என்ன காரணங்கள்?
 1. துணி எளிதில் கிடைக்கக்கூடியது 2. துணியை மீண்டும் பயன்படுத்தலாம் 3. நாப்கின்களைப் பற்றி தெரியாது 4.
 நாப்கின்களை பயன்படுத்த விரும்பவில்லை 5. துணியை
- நன்றாக உறிஞ்சும் 6. கூச்சம் 7. நாப்கின்கள் விலை அதிகம் 8. மற்றவை
- 32) How frequently do you change the pads per day? 1. Once a day

- 2. Twice a day 3. Thrice a day 4.Four times a day 5.> four times a day ஒரு நாளைக்கு நீங்கள் எத்தனை முறை நாப்கின் மாற்றிக் கொள்கிறீர்கள்?
 - 1. ஒரு முறை 2. இருமுறை 3. மூன்று முறை 4. நான்கு முறை 5. அதற்குமேல்
- 33) Do you reuse the clothes? 1. Yes 2. No நீங்கள் துணிகளை மீண்டும் பயன்படுத்துகிறீர்களா?
- 1. ஆமாம் 2.இல்லை
- 34) How do you wash the used clothes?

 1. With water alone

 2. With water, soap
 - 3. Others

நீங்கள் எவ்வாறு துணிகளை சுத்தம் செய்கிறீர்கள்?

- 1.தண்ணீர் மட்டும்
- 2.தண்ணீர், சோப்பு. 3. மற்றவை
- 35) How do you dry the clothes? 1. Outside the house in sunlight
 - Outside the house but not under sunlight
 Others
 3.Inside the house
 4.

எப்படி துணிகளை உலர்த்துகிறீர்கள்?

- 1. சூரிய ஒளியில் 2. வீட்டின் வெளியே ஆனால் சூரிய ஒளி கீழ் இல்லை 3. வீட்டின் உள்ளே 4. மற்றவை
- 36) How do you dispose the used napkins/cloth?

 1. Wash and dispose

 2. Burying
- 2. Burning 4. Throws in dustbin 5. Flushing in toilet 6. Others பயன்படுத்திய துணி/நாப்கின்களை எப்படி அப்புறப் படுத்துவீர்கள்?
 - கழுவி அகற்றுதல். 2. புதைத்தல் 3.எரித்தல் 4. குப்பைத் தொட்டியில் வீசுதல் 5. கழிப்பறைகளில் போடுதல் 6. மற்றவை
- 37) Do you bath regularly bath during menstruation? 1. Yes 2. No மாதவிடாயின் போது நீங்கள் தவறாமல் குளிக்கிறீர்களா?
 - 1. ஆமாம் 2. இல்லை
- 38) How do you wash your genitalia during menstruation? 1. With water alone
- 2. With soap and water 3. Others மாதவிடாயின் போது உங்கள் பிறப்புறுப்பை எவ்வாறு சுத்தம் செய்கிறீர்கள்?
 - 1. தண்ணீர் மட்டுமே 2. சோப்பு மற்றும் தண்ணீர்
 - 2. ഥന്നതഖ
- 39) Do you change pads at school/college? 1. Yes 2. No நீங்கள் பள்ளி / கல்லூரியில் நாப்கின்களை மாற்றிக் கொள்கிறீர்களா?

ஆமாம் 2.இல்லை

- 40) Do you absent yourself from school/college during menstruation?1. Yes 2. No மாதவிடாய் காலத்தில் நீங்கள் பள்ளி / கல்லூரியில் இருந்து விடுப்பு எடுத்துக்கொள்வீர்களா? 1. ஆமாம் 2. இல்லை
- 41) If yes, what are the reasons for absenteeism?

 1. Lack of privacy
 - 2. Lack of provision for disposal of pad/cloth 3. Lack of water supply for cleaning 4. Pain or discomfort 5. Fear of getting stain on clothes
 6. Lack of toilet facility at school/ college 7. Others
 - ஆம் எனில், காரணம் என்ன? 1. தனிமையான இடமின்மை 2. மாற்றுவதற்கான/சுத்தம் செய்வதற்கான வசதி இல்லை 3. தேவையான தண்ணீர் வசதி இல்லை 4. வலி/ அசௌகர்யம்
 5. துணியில் கறை படியும் என பயம் 6. கழிப்பறை வசதி இல்லை 7. மற்றவை
- 42) Do you practice any restrictions?

 1. No restrictions practiced

 2. Not to attend religious functions or go to temple or enter pooja room

 3. Not to go to school

 4. Not to go/play outside

 5. Separate sitting6. Cannot cook

 7. Not allowed to touch anyone

 8. Cannot enter kitchen

 9. Not allowed to sleep in the usual place ` 10.

 Others

நீங்கள் எதேனும் கட்டுப்பாடுகளை கடைபிடிக்கிக்கிறீர்களா? எந்த கட்டுப்பாடும் இல்லை 2. மத சார்பில் கலந்துகொள்ளவோ அல்லது கோயிலுக்குச் செல்லவோ பூஜா அறைக்குள் நுழையவோ 3. பள்ளிக்கு செல்லவில்லை வெளியே கூடாது 4. செல்ல/விளையாட அனுமதி இல்லை 5. கனியாக அமர வேண்டும் 6. சமைக்க முடியாது யாரையம் கொட அனுமகி 7. இல்லை 8. சமையலறையில் நுழைய முடியாது 9.வழக்கமான இடக்கில் தூங்க அனுமகி இல்லை 10. மற்றவை 43) Do you avoid any food substances during menstruation? 1. Yes 2.No மாதவிடாய் காலக்கில் ஏகேனும் உணவ பொருட்களை தவிர்க்கிறீர்களா?

1. ஆமாம் 2. இல்லை

Consent form (ஒப்புதல் படிவம்)

ஆராய்ச்சி தலைப்பு: காஞ்சிபுரம் மாவட்டத்தின் மூன்றாம் நிலை பராமரிப்பு மருத்துவமனையின் கள ஆய்வு பணிக்கு உட்பட்ட கிராமப்பற மற்றும் நகர்ப்புற பருவ வயது பெண்களின் மாதவிடாய் கால சுகாதார பழக்கவழக்கங்கள்

பெயர் : தேதி :

வயது:

பங்களிப்பாளர் எண் :

எனக்கு ஆராய்ச்சியின் விவரம் அனைத்தும் எழுத்து மூலமாகவும் எனது தாய் மொழியிலும் விளக்கப்பட்டது .

நான் மேற்கொண்ட ஆராய்ச்சியைப்பற்றி கேள்விகள் கேட்க அனுமதிக்கப்பட்டு அதனை புரிந்துகொண்டேன்.

இந்த ஆராய்ச்சியில் எனது பங்களிப்பு சுயமாக நான் எடுத்த முடிவு. மேலும் நான் எந்த நேரத்திலும் எந்தவித காரணமும் கூறாமல் ஆராய்ச்சியிலிந்து வெளியேற எனக்கு உரிமை

உள்ளது என்பதை புரிந்து கொண்டேன்.

இந்த ஆராய்ச்சியின் முடிவுகளை அறிவியல் காரணங்களுக்காக பயன்படுத்தி கொள்ள நான் ஒப்புக்கொள்கிறேன்.

இந்த ஆராய்ச்சியில் பங்கு பெற முழு மனதுடன் சம்மதிக்கிறேன்.

கையொப்பம் (பங்களிப்பாளர் & பெற்றோர்)

ANNEXURE 7 MASTER CHART

																																										П	Т				\top	\top	T	\blacksquare		\prod
S.No	name	age	resi	mari	edu par	rel	ses	bi ord	fam typ	stu pl	toi hom	toi sch	age men	aware	info	ideal age	canse	source	fred	preg	know sc	att mens	att restrn	att food	att sc	freq pat	days	amt	DOOM 1	hokao	abdnain	hodpn	slp	nosym	aps	padch	disp	bath	geni	pr sc	pd sch	reas abs	IVes acc	no rstrn	rel rstrn	play	sit	cook	tonch	kitchen	rstrn slp	othr rsn avd fd
1	nivetha	14	1	1 5	5	1	5	2	3	1	1	1	12	1	1	2	2	3	1	1	2	1	2	2	2	1	4 2	2 2	2	2	2	2	2	1	1	2	3	1	2	2	2 1	2		1	2	2	2	1	1	1	1 :	2 2
2	swetha	15	1	1 5	5	1	3	1	1	2	1	1	13	1	1	2	2	3	1	3	2	2	2	1	2	1	3 2	2 2	2	2	1	2	2	2	1	3	4	1	2	1	1 2	99		2	1	2	2	2	1	2	1 :	2 1
3	anugraha	17	1	1 5	5	1	4	1	1	2	1	1	13	1	1	2	1	1	1	2	5	2	2	1	2	1	3 2	2 2	2	1	2	2	2	2	1	4	4	1	2	1	1 2	99		2	1	2	2	2	2	2	2 2	2 1
4	vidhyabha rathi	15	1	1 4	6	1	1	1	1	2	1	1	13	1	1	2	2	1	1	2	4	2	1	1	1	1	5 2	2 2	2	1	2	2	2	2	1	4	4	1	2	1	1 2	99	,	2	1	2	2	2	2	2	2 2	2 1
5	swetha	16	1	1 5	5	1	2	1	1	2	1	1	13	1	1	2	2	1	1	3	3	2	1	1	1	1	5 2	2 2	2	2	2	2	2	1	1	3	4	1	2	1	1 2	99		2	1	2	2	2	1	2	1 :	2 1
6	visithra	15	1	1 5	5	1	3	1	1	2	1	1	13	1	4	2	2	3	1	3	2	2	2	1	2	1	3 2	2 2	2	2	1	2	2	2	1	3	4	1	2	1	1 2	99		2	1	2	2	2	2	2	2 2	2 1
7	theepthi	18	1	1 5	6	1	1	2	1	2	1	1	12	1	1	2	1	1	1	2	5	2	2	2	3	1	3 2	2 2	1	2	2	2	2	2	1	4	4	1	2	1	1 2	99		1	2	2	2	2	2	2	2 2	2 2
8	anne	17	1	1 5	6	3	1	2	1	2	1	1	11	1	1	1	1	1	1	2	4	2	2	2	3	1	4 2	2 2	2	2	2	2	2	1	1	4	4	1	2	1	1 2	99		1	2	2	2	2	2	2	2 2	2 2
9	rithika	16	1	1 4	6	1	1	2	1	1	1	1	13	2	99	1	2	1	1	2	3	2	2	2	3	1	3 2	2 2	2	2	1	2	2	2	1	4	4	1	2	1	1 2	99		1	2	2	2	2	2	2	2 2	2 2
10	yazhini	18	1	1 5	6	1	1	2	1	1	1	1	12	1	1	1	1	1	1	2	4	2	2	2	3	1	3 2	2 2	2	2	2	1	2	2	1	4	4	1	2	1	1 2	99		1	2	2	2	2	2	2	2 2	2 2
11	prabha	18	1	1 5	6	1	1	3	1	2	1	1	11	1	3	1	1	1	1	2	4	2	2	2	3	1	4 2	2 2	2	1	2	2	2	2	1	4	4	1	2	1	1 2	99		1	2	2	2	2	2	2	2 2	2 2
12	semmozhi	18	1	1 5	6	1	1	2	1	2	1	1	13	1	1	2	1	1	1	2	5	2	2	1	2	1	5 2	2 2	2	1	2	2	2	2	1	3	4	1	2	1	1 2	99		1	2	2	2	2	2	2	2 2	2 1
13	tharini	17	1	1 5	6	1	1	1	1	2	1	1	11	1	4	2	2	1	1	2	4	2	2	2	3	4	3 2	2 1	2	2	2	2	2	2	1	3	4	1	2	1	1 2	99		2	1	2	2	2	1	2	2 2	2 2
14	imaiya selvi	17	1	1 5	2	1	3	3	1	1	1	1	13	1	4	2	6	1	1	2	4	2	2	2	3	1	3 2	2 2	2	2	2	2	2	1	1	4	4	1	2	1	1	99		2	1	2	2	2	2	2	2 2	2 1
15	harini	18	1	1 5	6	1	1	1	1	1	1	1	11	1	1	2	1	1	1	2	5	1	2	2	2	1	6 2	2 2	2	2	1	2	2	2	1	4	4	1	2	1	2 2	99	T	1	2	2	2	2	2	2	2 2	2 2
16	karthika	17	1	1 5	5	1	2	2	1	2	1	1	13	1	1	2	2	1	1	2	4	2	2	2	3	1	3 2	2 2	2	1	2	2	2	2	1	2	3	1	2	2	1 2	99		1	2	2	2	2	2	2	2 2	2 2
17	chaithra	16	1	1 5	6	1	1	1	2	1	1	1	13	1	1	2	2	1	1	2	4	2	2	2	3	1	2 2	2 2	2	1	2	2	2	2	1	2	4	1	2	2	1 2	99		1	2	2	2	2	2	2	2 2	2 2
18	jennifer	19	1	5	5	3	1	2	1	2	1	1	14	2	99	2	1	1	1	2	5	2	2	2	3	1	4 2	2 2	2	1	1	2	2	2	1	4	3	1	2	1	1 1	4		2	2	2	2	2	1	1	2 2	2 1
19	swathi	12	1	1 3	5	1	3	2	1	2	1	1	11	1	1	2	1	4	1	3	3	1	2	2	2	1	6 2	2 2	2	2	2	2	2	1	1	2	3	1	2	1	2 2	99		2	1	2	2	2	2	2	2 2	2 2
20	dillirani	19	1	1 4	4	1	1	1	1	1	1	1	12	1	1	2	2	1	1	2	4	2	2	2	3	4	4	1 2	2	2	1	2	2	2	1	2	4	1	2	1	1 2	99		2	1	2	2	2	2	2	2 2	2 2
21	roobini	17	1	1 5	6	1	2	1	1	2	1	1	13	2	99	2	1	1	1	2	5	2	2	2	3	1	5 2	2 2	2	2	1	2	2	2	1	2	4	1	2	2	1 2	99		2	1	2	2	2	2	2	2 2	2 2
22	shalini	18	1	1 5	3	3	4	1	1	1	1	1	14	1	1	2	2	4	1	2	3	2	2	2	3	1	3 2	2 2	2	1	2	2	2	2	1	4	3	1	2	1	1 1	4		1	2	2	2	2	2	2	2 2	2 2
23	samyuktha	14	1	1 4	6	1	2	2	3	2	1	1	12	1	1	2	2	3	1	2	3	1	2	2	2	4	6 3	3 2	2	1	1	2	2	2	1	4	4	1	2	1	1 2	99		2	1	1	2	1	1	1	1 1	2 2
24	moogambi gai	19	1	1 5	6	1	2	3	1	1	1	1	13	1	1	2	2	1	1	2	4	2	1	2	2	1	5 2	2 2	2	2	2	2	2	1	1	3	4	1	2	1	1 2	99		2	1	2	2	2	1	1	1 2	2 2
25	dharini	13	1	1 4	4	1	3	2	1	2	1	1	13	1	4	2	6	4	1	3	2	1	2	2	2	1	5 2	2 2	2	1	2	2	2	2	1	3	3	1	2	1	1 2	99		2	1	2	2	2	2	2	2 2	2 2
26	abinaya	19	1	1 5	6	1	2	2	1	1	1	1	14	1	1	2	1	3	1	2	4	1	2	2	2	1	4 2	2 2	2	1	1	2	2	2	1	4	4	1	2	1	1 2	99		2	1	2	2	2	2	2	2 2	2 2
27	joice	15	1	1 5	6	3	1	2	2	2	1	1	11	1	1	2	1	1	1	2	5	2	2	2	3	1	3 2	2 2	1	1	1	2	2	2	1	2	4	1	2	1	1 1	4	T	1	2	2	2	2	2	2	2 2	2 2

28	shruthi	15	1	1 :	5	6 1	1	1	1	2	1	1	13	1	1	2	1	1	1	2	5	2	2	2 3	4	6	2	2	2	2 2	2	2	1	1	5 4	1	2	1	1 2	2 99	,	2	1	2	2	2	2	2	2 (2 2
29	sowmiya	16	1	1 :	5	5 1	2	1	1	2	1	1	13	1	1	2	2	1	1	3	3	1	1	1 0) 1	5	2	2	2	2 2	2	2	1	1	3 4	1	2	1	1 2	2 99		2	1	2	2	2	2	2 2	2 2	2 1
30	swetha	15	1	1 :	5	5 1	3	1	1	2	1	1	13	1	4	2	2	3	1	3	2	2	2	1 2	. 1	3	2	2	2	2 1	2	2	2	1	3 4	1	2	1	1 2	2 99)	2	1	2	2	2	2	2 2	2 2	1
31	harini	15	1	1 4	1	6 1	2	1	1	2	1	1	13	1	4	2	2	1	1	2	4	2	1	1 1	1	6	2	2	2	1 2	1	2	2	1	4 4	1	2	1	1 2	2 99)	2	1	2	2	2	2	2	2 2	1
32	sai harini	17	1	1 :	5	5 1	1	1	1	2	1	1	13	1	4	1	1	2	1	3	2	2	2	2 3	1	3	2	2		1 2	2	2	2	1 -	4 4	1	1	2	1 2	2 99)	2	1	2	2	2	2	2	2 2	1
33	shruthi	17	1	1 :	5	5 1	4	2	1	2	1	1	13	2	99	2	1	1	1	2	5	2	2	2 3	1	3	2	2	2	1 1	2	2	2	1	3 4	1	2	1	1 2	2 99)	2	1	2	2	2	2	2	2 2	2 2
34	harshini	15	1	1 :	5	5 1	1	1	1	2	1	1	14	1	1	2	2	1	1	2	4	2	2	2 3	1	5	2	2	2	1 2	2	2	2	1	3 4	1	2	1	1 2	2 99)	2	1	2	2	2	2	2	2 2	2 2
35	harshavard hini	16	1	1 :	5	6 1	3	1	1	2	1	1	12	2	99	2	2	1	1	2	4	2	1	2 2	1	3	2	2	2	2 1	2	2	2	1	3 4	1	2	1	1 2	2 99)	2	1	2	2	2	1	2 2	2 2	2 2
36	gladius Mary	18	1	1 :	5	4 3	3	1	1	2	1	1	13	2	99	2	2	2	1	3	2	2	2	2 3	1	3	2	2	2	2 2	2	2	1	1	5 3	1	2	1	1 2	2 99)	1	2	2	2	2	2	2 2	2 2	2 2
37	jayasri	13	1	1 4	1	5 1	3	1	2	2	1	1	12	2	99	2	2	4	1	2	3	1	2	2 2	1	5	2	2	2	2 1	2	2	2	1	2 1	1	1	1	1 :	1 4		2	1	2	2	2	2	2	2 2	2 2
38	Thilagavat hi	13	1	1 4	1	4 1	3	1	1	2	1	1	11	2	99	2	2	4	1	1	2	1	2	2 2	1	5	2	2	2	2 1	2	2	2	1	3 1	1	1	2	1	1 4		2	1	2	2	2	2	2	2 2	2 2
39	ashwitha	17	1	1 :	5	4 1	1	1	2	2	1	1	11	1	1	1	1	4	3	2	1	2	2	2 3	1	3	2	2	2	2 1	2	2	2	1	4 3	1	2	1	2	1 1		2	1	1	2	2	1	1 ′	2 2	2 2
40	sadhana	13	1	1 4	4	5 1	3	1	2	2	1	1	13	2	99	2	4	4	1	2	3	1	1	1 0	1	6	2	2	2	2 1	2	2	2	1	4 3	1	1	2	1 2	2 99)	2	1	2	2	2	2	2	2 2	1
41	abinaya	14	1	1 4	1	6 1	2	1	1	2	1	1	13	2	99	1	1	1	1	1	3	2	1	1 1	1	6	2	2	2	1 2	2	2	2	1 -	4 3	1	1	1	1 2	2 99	_	2	1	2	2	2	2	2	2 2	2 2
42	pavithra	13	1	1 4	1	6 1	2	2	1	2	1	1	13	2	99	2	6	2	1	1	2	2	1	1 1	. 1	6	1	2	2	2 2	2	2	2	1	5 4	1	1	2		2 99		2	1	2	2	2	2	2 2	2 2	2 1
43	janani	13	1	1 4	1	6 1	2	2	1	2	1	1	12	2	99	2	4	4	1	2	3	1	1	1 0) 1	5	2	2	2	_	2	2	2	1	2 4	1	2	1		2 99		2	1	2	2	2	2	2	2 2	2 1
44	karthika	14	1	1 4	1	6 1	2	1	1	2	1	1	11	2	99	2	1	2	1	2	4	1	2	1 1	1	5	2	2	2	2 1	2	2	2	1	2 3	1	2	2		2 99)	2	1	2	2	2	2	2 2	2 2	. 1
45	keerthana	13	1	1 :	3	4 2	2	1	1	2	1	1	10	2	99	3	2	4	1	2	2	2	2	2 2	1	4	3	2	2	2 1	2	2	2	1 -	4 3	1	1	2		2 99)	1	2	2	2	2	2	2 2	2 2	2 2
46	monika	14	1	1 4	-	6 1	1	2	1	2	1	1	11	2	99	2	1	2	1	2	4	1	2	1 1	1	5	2		2	2 1	2	2	2	1	2 4	1	2	2		2 99		2	1	1	1	2		2	1 2	
47	divya	13	1	1 :	_	4 1	1	1	1	2	1	1	11	1	1	2		4	1	2	4	_	2	1 1	1	3	2		2	_	2	2	2	1	. 5	1	1	1		2 99		2	2	1	2				2 2	
48	narmatha	13	1	1 :	-	6 1	1	1	1	2	1	1	12	2	99	3			1	2		_	2	1 2	_	5	2	-	_	2 2	1	2	2	1	2 4	1	1	1		2 99		2	2	1	2	2		_	_	2 2
49	turanya	13	1	1 :	3	6 1	1	1	1	2	1	1	12	2	99	3	2	3	1	2	2	2	2	1 2	. 1	6	2	2	2	2 2	1	2	2	1	2 4	2	1	2		2 99		2	2	1	2	-			_	2 2
50	divya	14	1	1 4	1	5 1	3	2	1	2	1	1	13	2	99	2	4	4	1	2	3	1	2	1 1	1	5	2	2	2	2 1	2	2	2	1	2 3	1	1	2		2 99		2	1	2	2	2	2	2 2	_	2 2
51	lavanya	14	1	1 4	1	1 1	2	2	1	2	1	1	13	1	1	2	1	3	1	1	3	2	1	1 1	. 1	4	3	2	1	2 1	2	2	2	1	3 3	1	1	1		2 99	_	2	1	1	2	2	1	1	1 2	_
52	sanjutha	14	1	1 4	1	6 1	1	1	1	2	1	1	13	1	1	2	1	1	1	2	5	2	1	1 1	1	5	2	1	2	2 1	2	2	2	1	4 3	1	1	2		2 99		2	2	1	1	1	1	1	1 2	
53	nisha	13	1	1 :	3	6 3	2	2	2	+-	1	1	10	2	99	2	<u> </u>	3	1	2	3	2	1	1 1	1	4	3	-	2		1	2	2	1	5 3	1	2	1		2 99	_	1	2	2	2	2	2		2 2	
54	poojasri	13	1	1 4	`- -	6 1	1	2	1	2	1	1	13	2	99	2	+-	1	1	2	5	2	2	2 3		3	2		2		2	2	2	1	4 3	1	2	1		2 99		2	1	1	1	2	1	_	_	2 1
55	yamini	13	1	1 .	-	4 3	2	2	1	2	1	1	12	1	2	1	3	1	1	2	4	_	2	1 2	3	+	2		2		1	2	2	1		1	2	1		2 99		1	2	2	2	2			2 2	
56	varsha	15	1	1 :		1 1	1	1	2		1	1	11	2	99	2	+	3	1	2	4	2	1	1 1	1	5	2		2	2 2	1	2	2	1	3 4	1	1	1		2 99		2	1	2	2	2	1	2	1 2	
57	pavithra	17	1	1 :		6 1	1	1	1	2	1	1	11	1	1	2	-	1	1	2		_	2	1 2	_	6	2	-	2	1 1	2	2	2	1	4 3	1	1	1		2 99	_	2	1	2	1	1	1	1	1 2	
58	sushmitha	16	1	1 :	-	6 3	2	1	1	2	1	1	13	1	2	2		1	1	2	5		2	1 2	1	5	2		2	+-	2	2	1	1		1	1	2		2 99	_	1	2	2	2	2			2 2	
59	lakshitha	12	1	1 :	_	7 1	1	2	2	2	1	1	11	1	3	1	3		1	2	2		2	1 1	1	5	2		2		2	2	2		5 3	1	2	1		 99 99 		2	1	2	1	2	_	2	1 2	
60	sneha		1		-	, 1	2	1	1	+	1	1		1		2	1	4	1	_	5		1	1 1	1	+	_		=	4	1	2	2			1	Ļ-Ĩ	1		_		2	1	-	1		_	_	_	-
61	sharu	19	1	1 :	-	6 1	2	1	2	2	1	1	12	1	3	1	2	3	1	2	3	2	1	1 2	1	5	3		2		2	2	2	1 .	5 3	1	2	2		2 99 2 99	_	1	1	2	2			_	2 2	2 1
62	harshitha	12 19	1	1 :	-	5 1	2	1	2	+-	1	1	11	1	2	2	-	5	4	2	3	-	2	1 1	1	5	2		2	+-	2	2	2	1 .	5 3	1	2	2		2 99		2	2	2	2				2 2	
-	Roshini		-			6 1	<u> </u>	2	1	2	1	1		1	3	1	+	1	4	2	2	-	2	1 2	. 1	Ť	_		=		1	2	2	1 1	+ 3	1	1	2		_	_			2	2	_	_	_	_	
64	vinisha	15	1	1 :)	4 3	2	2	1	2	1	1	11	1	3	1	6	3	1	2	2	1	2	1 1	1	3	2	2	2	4 I	1	2	2	1	4 3	1	1	2	1 2	2 99	'	1	2		2	2	2	2	2 2	1

65	kavitha	16	1	1 3	3	5 1	2	1	2	2	1	1	11	1	4	1	6	3	1	2	2 1	2	1	1	1	3	2	2 2	1	2	1	2	2	1 4	4	1	1	2	1 2	99	2		1 2	2 2	2 2	1	2	1	2	1
66	deepika	12	1	1 3	3	1 1	2	1	2	2	1	1	11	1	4	2	6	4	1	2	3 2	2	1	2	1	5	3	1 2	2	1	2	2	2	1 3	3	1	1	2	1 2	99	2	_	1 1	1 2	2 2	1	2	1	2	1
67	monisha	18	1	1 5	5	4 3	2	1	1	2	1	1	11	2	99	2	1	3	1	2	4 1	2	1	1	2	5	2	2 2	2	1	2	2	2	1 2	4	1	1	1	2 2	99	1		2 2	2 2	2 2	2	2	2	2	1
68	Gayathri	15	1	1 4	1	6 1	3	2	1	2	1	1	13	1	1	2	2	1	1	2	4 2	. 1	1	1	1	5	2	2 2	2	1	2	2	2	1 4	1	1	1	1	1 2	99	2		1 1	1 1	1 2	1	1	1	2	1
69	sreeba	13	1	1 4	1	6 1	1	1	1	2	1	1	11	1	1	2	2	1	1	2	4 2	. 1	1	1	1	5	2	2 2	2	1	2	2	2	1 4	1	1	1	1	2 2	99	2		1 1	1 2	2 2	1	2	1	2	1
70	arundhathi	14	1	1 4	1	6 1	1	2	1	2	1	1	12	2	99	2	2	1	1	2	4 1	2	2	2	1	4	2	2 2	2	2	1	2	2	1 3	3	1	1	2	1 2	99	2		1 2	2 2	2 2	2	2	2	1	2
71	monika	14	1	1 4	1	4 3	3	2	2	2	1	1	12	2	99	2	2	3	4	2	2 1	2	2	2	1	4	2	2 2	2	2	1	2	2	1 2	3	1	2	2	1 1	5	2		1 2	2 2	2 2	2	2	2	2	1
72	bhuvana	14	1	1 4	4	4 1	3	2	2	2	1	1	12	2	99	2	2	3	4	2	2 1	2	2	2	1	4	2	2 2	2	2	1	2	2	1 2	3	1	2	2	1 1	5	2		1 2	2 2	2 2	2	2	2	2	2
73	janani	13	1	1 3	3	1 1	2	2	1	2	1	1	12	2	99	2	2	4	4	2	2 2	2	1	2	1	4	2	2 2	2	2	1	2	2	1 2	3	1	2	2	2 1	5	2		1 2	2 2	2 2	2	2	2	2	1
74	joshika	13	1	1 3	3	5 3	1	1	1	2	1	1	13	1	2	2	2	4	1	2	3 1	. 2	2	2	1	6	2	2 2	2	2	1	2	2	1 3	3	1	2	1	1 1	2	1		2 2	2 2	2 2	2	2	2	2	1
75	keerthika	14	1	1 4	1	5 1	1	1	1	2	1	1	13	1	1	2	2	4	1	2	3 1	2	2	2	1	2	2	2 2	2	2	2	2	1	1 3	3	1	2	1	1 1	2	2		1 2	2 2	2 2	2	2	2	2	1
76	Gayathri	13	1	1 3	3	6 1	1	2	1	2	1	1	13	2	99	2		3	1	2	3 2	2	2	3	1	5	2	2 2	ΨĒ	2	2	2	1	1 4	3	1	2	1	1 1	4	2		1 2		2 2	2	2	2	2	1
77	priya	14	1	1 4	`+	4 3	_	2	1	2	1	1	11	1	3	2		4	-	_	3 2			2	1	-	2	2 2	_	2		-+	2	1 3	3	1	2	1	1 1		1		2 2	_	4	2	-	2	2	1
78	jayasri	13	1	1 3	3	6 1	1	2	1	2	1	1	12	1	1	2	2	4	1	2	3 2	2	1	2	1	6	2	2 2	2	2	1	2	2	1 4	3	1	2	1	1 2	99	2		1 2	2 2	2 2	2	2	2	2	1
79	Dhanalaks hmi	14	1	1 4	1	4 1	2	2	1	2	1	1	11	2	99	2	2	1	3	3	2 2	1	2	2	2	3	4	2 2	2	2	1	2	2	1 2	1	1	1	1	1 2	99	2		1 2	2 2	2 2	2	2	2	2	1
80	dhanusha sri	13	1	1 4	1	6 1	1	1	1	2	1	1	12	2	99	2	2	1	1	2	4 1	2	2	2	1	6	2	2 2	2	2	2	2	1	1 3	1	1	1	1	1 2	99	2		1 2	2 2	2 2	2	2	2	2	2
81	shalini	14	1	1 4	1	6 1	1	2	1	2	1	1	13	2	99	2	2	1	1	2	4 1	2	2	2	1	5	2	2 2	2	2	2	2	1	1 3	1	1	1	1	1 2	99	2		1 2	2 2	2 2	2	2	2	2	2
82	keerthi varshana	11	1	1 3	3	6 1	2	2	2	2	1	1	10	2	99	1	6	1	1	2	3 2	. 1	1	1	1	1	2	2 2	2	1	2	2	2	1 1	3	1	2	2	2 2	99	2		1 2	2 2	2 2	2	2	2	2	1
83	nishanthi	19	1	1 5	5	4 1	3	2	2	1	1	1	10	2	99	1	2	3	1	2	2 2	1	1	1	1	5	2	2 2	2	1	2	2	2	1 5	3	1	2	1	1 1	4	1		2 2	2 2	2 2	2	2	2	2	1
84	mubashira h	15	1	1 4	1	4 2		1	2	2	1	1	13	2	99	2	6	3	1	2	3 2	1	1	1	1	4	2	2 2	2	2	1	2	2	1 2	1	1	2	1	2 2	99	2		1 2	2 2	2 2	2	2	2	2	1
85	saranya	18	1	1 5	5	6 1	2	1	1	2	1	1	11	2	99	2	1	1	3	2	4 2	1	1	1	3	5	2	2 2	2	2	1	2	2	1 3	3	1	1	2	2 2	99	2		1 2	2 2	2 2	2	1	2	2	1
86	vijayalaks hmi	18	1	1 5	5	4 1	2	2	2	2	1	1	10	2	99	2	1	1	3	2	4 2	. 1	1	1	3	5	2	2 2	2	2	1	2	2	1 2	3	1	1	2	1 2	99	2		1 2	2 2	2 2	2	2	2	2	2
87	selin latha	17	1	1 4	1	5 3	2	1	1	2	1	1	12	2	99	2	1	1	1	2	5 1	2	1	1	1	5	2	2 2	2	2	1	2	2	1 2	3	1	1	2	2 2	99	2		2 2	2 2	2 2	2	2	2	1	1
88	blessy	16	1	1 5	5	6 3	2	2	1	2	1	1	13	1	4	2	1	3	1	2	4 2	2	1	2	1	4	2	2 2	2	2	1	2	2	1 2	6	1	2	2	2 2	99	2		1 2	2 2	2 2	2	2	2	2	1
89	janani	17	1	1 5	5	3 1	2	2	2	2	1	1	11	2	99	2	1	4	3	2	3 2	2	1	2	1	5	2	2 2	1	2	2	2	2	1 2	3	1	1	2	1 2	99	2		1 2	2 2	2 2	2	2	2	2	1
90	harini	19	1	1 5	5	6 1	1	1	1	1	1	1	12	1	1	2	1	1	1	2	5 2	2	2	3	1	5	2	2 2	2	2	2	2	1	1 3	4	1	2	1	1 2	99	1		2 2	2 2	2 2	2	2	2	2	2
91	vinodhini	19	1	1 5	5	5 1	2	1	1	2	1	1	11	2	99	2	1	1	1	2	5 2	2	2	3	1	3	1	1 2	2	2	2	2	2	1 2	3	1	1	2	1 1	4	2		1 2	2 2	2 2	2	2	2	2	2
92	vincy	16	1	1 5	5	6 3	2	2	1	2	1	1	11	2	99	2	6	4	1	2	3 2	2	1	2	1	4	2	2 2	2	1	2	2	2	1 1	3	1	1	2	2 2	99	1		2 2	2 2	2 2	2	2	2	2	1
93	yuvasree	16	1	1 5	5	5 1	3	1	2	2	1	1	11	2	99	1	2	1	1	2	3 2	2	1	2	1	4	2	2 2	1	1	2	2	2	1 2	3	1	1	2	1 1	4	2		1 2	2 2	2 2	1	2	1	2	1
94	pooja	17	1	1 5	5	5 1	3	1	1	1	1	1	12	2	99	2	6	3	1	2	3 2	2	2	3	1	5	2	2 2	2	1	2	2	2	1 2	4	1	1	2	2 2	99	2		1 2	2 2	2 2	2	2	2	2	2
95	afrin	14	1	1 4	1	4 3	2	1	1	2	1	1	14	2	99	2	2	3	1	1	2 2	. 1	2	2	1	4	1	2 2	2	2	2	2	1	1 3	3	1	1	1	1 2	+	2	_		2 2	2 2	2	-	2		2
96	barisha	19	1	1 5	+	4 2	1	2	1	1	1	1	11	2	99	2	1	1	1	-	5 2	2	1	2	1	3	2	2 2	+-	2		2	2	1 4	3	1	1	1	1 2	+	2	_		2 2	4	2	_	2	_	2
97	rumana	18	1	1 5	5	6 2	_	2	1	2	1	1	11	2	99	2	1	1	1	-	5 1	. 2	2	2	1		_	2 2	+	1	+	-+	2	1 5	3	1	1	1	1 1	-	2	_		2 2	_	2	-	2		2
98	harini sri	14	1	1 4	-	6 1	2	1	1	2	1	1	13	2	99	2		3	1	-	3 2	+ -	1	1	1		-	2 2	┿	2		2	2	1 2	1	1	-	2	1 1	<u> </u>	2	-	1 1		_	2	_	2	2	1
99	ashwini	15	1	1 4	`+	7 1	1	2	1	2	1	1	12	2	99	2	-+	3	1	-	3 2	+-	ΨĨ	3	1		2	2 2	+ -	2	_	_+	2	1 2	1	1	1	2	2 2	4	1	-	2 2	_	_	_	_	2	_	2
100	pavithra	14	1	1 4	1	5 1	3	1	1	2	1	1	10	2	99	2	1	1	1	1	4 2	2	1	2	1	5	2	2 2	2	1	2	2	2	1 3	3	1	1	1	1 2	99	1		2 2	2 2	2 2	2	2	2	2	1

101	aarthi	14	1	1	4	5	1	3	2	1	2	1	1	13	2	99	2	. 1	4	1	2	4	2	2	1	2	1 5	2	2	2	2	2	2	1 2	2 1	3	3	1	1	1	1	2 9	99	2	2	2	1	2	2	2 1		1
102	tamilselvi	13	1	1	4	5	1	2	1	2	2	1	1	12	2	99	2	. 1	4	1	2	4	2	2	1	2	1 3	2	2	2	2	2	2	1 2	2 1	3	3	1	1	1	1	2 9	99	2	2	2	1	2	2	2 1	2	1
103	kaviya	14	1	1	4	6	1	3	1	2	2	1	1	12	2	99	1	1	3	1	2	3	2	1	1	1	1 4	2	2	2	2	2	1	2 2	2 1	5	4	1	1	1	1	2 9	99	2	2	2	1	2	2	2 2	2 2	1
104	vaitheesh wari	15	1	1	4	4	1	3	1	1	2	1	1	13	2	99	2	2	1	1	2	4	2	2	1	2	2 4	2	2	2	1	1	1	2 2	2 1	2	3	1	1	2	1	1	4	1	2	2	2	2	2	2 2	2 2	1
105	monika	14	1	1	4	4	3	3	1	1	2	1	1	11	2	99	2	2	1	1	2	4	2	2	1	2	1 4	2	2	2	2	1	2	2 2	2 1	3	3	1	1	1	1	2 9	99	1	2	2	2	2	2	2 2	2 2	1
106	kavinsha	14	1	1	4	7	3	2	2	1	2	1	1	13	2	99	1	1	1	2	2	3	1	1	1	0 4	4 2	2	2	2	1	2	2	2 2	2 1	4	1	1	2	1	1	1	4	1	2	2	2	2	2	2 2	2 2	1
107	mahalaksh mi	14	1	1	4	5	1	2	1	1	2	1	1	11	1	2	1	1	1	1	2	4	2	1	1	1	1 5	2	2	2	2	1	2	2 2	2 1	2	3	1	1	2	1	2	99	2	1	2	2	2	2	2 2	2 2	2
108	abirami	15	1	1	4	5	1	3	1	1	2	1	1	10	2	99	2	1	1	1	2	5	2	2	2	3	1 5	2	2	2	2	1	2	2 2	2 1	3	3	1	1	2	2	1 9	99	2	1	2	2	2	2	2 2	2 2	2
109	priyanga	14	1	1	4	5	3	1	1	2	2	1	1	11	2	99	2	2	1	1	2	4	2	2	1	2	1 5	1	2	2	2	2	2	1 2	2 1	3	3	1	2	1	1	1	4	2	1	2	2	2	2	2 2	2 2	2
110	kiruthiga	12	1	1	3	4	1	1	2	1	1	1	1	12	1	1	1	6	4	1	2	2	2	1	1	1	1 6	4	2	2	2	2	1	2 2	2 1	3	3	1	1	1	1	2 9	99	2	1	2	2	2	2	2 2	2 2	1
111	janani	12	1	1	3	4	1	1	2	1	2	1	1	12	2	99	1	6	3	1	2	2	2	1	1	1	1 6	3	2	2	2	1	2	2 2	2 1	3	3	1	1	1	1	2	99	2	1	1	2	2	2	2 2	2 2	2
112	nisha	13	1	1	4	5	1	3	2	1	2	1	1	12	1	1	2	1	1	1	1	4	2	1	1	1	1 4	2	2	2	2	1	2	2 2	2 1	3	4	1	1	1	1	1	2	2	1	2	2	2	1	2 1	2	1
113	sandhiya	13	1	1	3	4	1	2	1	1	2	1	1	11	2	99	2	2	4	1	1	2	2	1	1	1	1 4	2	2	2	2	1	2	2 2	2 1	4	1	1	1	2	1	1	4	2	1	2	2	2	1	2 1	2	1
114	swetha	14	1	1	4	4	1	2	2	1	2	1	1	11	2	99	2	2	1	1	2	4	2	1	1	1	1 3	2	2	2	2	2	2	2 1	1 1	4	3	1	2	1	1	2	99	2	1	2	2	2	2	2 2	2 2	2
115	asharfunis ha	14	1	1	4	4	2	2	1	2	2	1	1	11	2	99	2	3	1	1	2	4	2	1	1	1	1 5	2	2	2	2	1	2	2 2	2 1	3	1	1	1	1	2	2	99	2	1	2	2	2	2	2 2	2 2	1
116	swetha	13	1	1	4	6	1	1	1	2	2	1	1	11	1	1	2	2	3	1	2	3	2	1	1	1	1 1	4	2	2	2	2	2	2 1	1 1	4	3	1	1	1	1	2 9	99	2	1	2	2	2	2	2 2	2 2	1
117	jayakrithik a	16	1	1	5	4	1	2	1	1	2	1	1	13	2	99	2	2	1	1	2	4	1	2	1	1	1 5	2	2	2	2	1	2	2 2	2 1	3	3	1	1	1	1	2	99	2	1	2	1	2	2	1 2	2 2	1
118	kavini	15	1	1	5	7	1	1	1	2	2	1	1	11	2	99	2	3	1	1	2	4	2	2	2	3	1 3	2	2	2	2	1	2	2 2	2 1	2	3	1	1	2	2	2 9	99	2	1	2	2	2	2	2 2	2 2	1
119	gayathri	16	1	1	5	1	1	3	1	2	2	1	1	11	2	99	2	1	1	1	2	5	2	2	2	3 4	4 3	2	2	2	1	1	2	2 2	2 1	3	3	1	1	1	1	1	4	2	1	2	2	2	2	2 2	2 2	1
120	ayesha afrin	16	1	1	5	5	2	1	2	1	2	1	1	13	2	99	2	2	1	1	2	4	2	1	1	1	1 5	3	2	2	1	1	1	1 2	2 1	2	3	1	1	2	1	1	4	2	1	2	2	2	1	2 1	2	1
121	yuvasri	15	1	1	5	4	1	3	1	2	2	1	1	13	2	99	2	1	1	1	2	5	2	2	1	2	1 5	2	2	2	2	1	2	2 2	2 1	4	3	1	1	1	2	2 9	99	2	1	2	2	2	2	2 2	2 2	1
122	ramya	15	1	1	5	5	1	1	1	1	2	1	1	11	2	99	2	2	1	1	2	4	1	2	1	1 4	4 4	2	2	2	2	2	1	2 2	2 1	3	3	1	1	1	1	2 9	99	2	1	2	1	2	1	2 2	2 2	2
123	sagaya janet	16	1	1	5	3	3	2	1	1	2	1	1	11	2	99	2	2	1	1	2	4	2	2	2	3 4	4 5	2	2	2	1	1	1	2 2	2 1	4	3	1	1	1	1	1	4	2	1	2	2	2	2	2 2	2 2	1
124	jheola mercy	16	1	1	5	5	3	1	1	1	2	1	1	13	1	1	2	1	3	1	2	4	2	2	2	3	1 3	2	1	2	1	1	2	2 2	2 1	2	3	1	1	2	1	1	4	1	2	2	2	2	2	2 2	2 2	2
125	subhalaks hmi	15	1	1	5	5	1	1	1	2	2	1	1	13	1	1	2	2	1	1	2	4	2	2	1	2	4 5	2	2	2	1	2	2	2 2	2 1	2	3	1	1	2	2	2	99	2	1	2	2	2	2	2 2	2 2	1
126	monisha	16	1	1	5	5	1	3	2	2	2	1	1	12	2	99	2	. 1	1	1	2	5	2	2	1	2	1 5	2	2	2	1	2	2	2 2	2 1	3	4	1	1	1	1	2 9	99	2	1	2	2	2	2	2 2	2 2	1
127	evangeline	16	1	1	5	5	3	2	1	1	2	1	1	11	2	99	2	2	1	1	2	4	2	1	1	1	1 3	2	2	2	2	1	2	2 2	2 1	3	3	1	1	1	1	2 9	99	1	2	2	2	2	2	2 2	2 2	1
128	fouziya	16	1	1	5	5	2	3	1	1	2	1	1	15	1	1	2	. 1	3	1	2	4	2	2	1	2	1 6	2	2	2	1	2	2	2 2	2 1	3	1	1	1	1	1	2 9	99	2	1	2	2	2	2	2 2	2 2	2
129	harini	16	1	1	5	3	1	3	1	1	2	1	1	13	1	3	2	. 1	3	1	2	4	1	2	1	1 3	3 3	2	2	2	1	2	2	2 2	2 1	3	3	1	1	1	1	2 9	99	2	2	2	2	2	1	2 1	2	1
130	jayashree	16	1	1	5	4	1	3	1	2	2	1	1	12	2	99	2	. 1	1	1	2	5	2	2	1	2	1 5	2	2	2	1	1	2	2 2	2 1	2	3	1	1	2	1	2 9	99	1	2	2	2	2	2	2 2	2 2	1
131	divya	15	1	1	5	4	3	4	1	2	2	1	1	11	2	99	2	2	1	1	2	4	2	2	1	2	1 5	1	2	2	2	1	1	2 2	2 1	3	3	1	1	1	1	2 9	99	1	2	2	2	2	2	2 2	2 2	2
132	priya	15	1	1	5	5	1	2	2	1	2	1	1	10	2	99	2	2	1	1	2	4	2	2	1	2	1 5	2	2	2	1	2	2	2 2	2 1	2	3	1	1	2	1	1	4	2	1	2	1	2	1	2 1	2	1
133	sharu	16	1	1	5	6	1	2	1	2	2	1	1	14	2	99	1	1	1	1	2	4	2	2	1	2	1 6	3	2	2	2	2	1	2 2	2 1	2	3	1	1	2	1	2 9	99	2	1	2	2	2	2	2 1	2	1
134	priya varshini	15	1	1	5	7	3	1	2	1	2	1	1	13	1	1	2	2	3	1	2	3	2	2	2	3 4	4 5	2	2	2	2	2	2	2 1	1 1	3	3	1	2	1	1	2 9	99	1	2	2	2	2	2	2 2	1	1

135	kaviya	15	1	1 5	6	1	1	1	2	2	1	1	12	2	99	2	6	4	1 2	2 3	3 1	2	1	1	1 5	2	2	2	2	1 2	2	2	1	4 4	1	1	2	1 2	99	2	1	2	2	2	2	2 1	1	2
136	monisha	12	1	1 3	7	1	1	2	2	2	1	1	10	1	2	1	3	4	1 2	2 2	2 1	2	1	1	1 6	2	2	2	2	2 2	1	2	1	5 3	1	2	1	1 2	99	2	1	1	2	2	1	2 2	1	1
137	dhana priya	14	1	1 4	. 4	1	3	2	1	2	1	1	11	2	99	3	1	2	2 1	. 1	1 1	1	1	1	2 2	2	2	2	2	2 2	2	1	1	3 3	1	2	1	1 2	2	1	2	2	2	2	2	2 2	2	1
138	priyadhars hini	18	2	1 5	4	1	5	2	1	2	1	1	14	1	2	2	2	3	1 2	2 3	3 2	2	2	3	2 2	3	2	2	2	2 1	1	2	1	4 3	1	2	1	1 1	4	4	2	2	2	2	1	1 1	2	1
139	sivaranjani	19	2	1 5	4	1	5	1	1	2	1	1	13	1	2	2	1	1	1 2	5	5 2	2	2	3	2 2	3	2	2	2	2 2	1	2	1	4 3	1	2	1	1 1	4	4	2	2	2	2	1	1 1	1	1
140	priyadhars hini	16	2	1 5	2	1	3	2	1	2	1	1	14	1	1	2	6	3	1 2	2 3	3 2	2	2	3	2 1	2	2	2	2	1 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	2	2
141	Nirosha	12	2	1 3	2	1	3	1	1	2	2	1	11	1	1	1	2	1	1 2	2 3	3 2	2	1	2	2 4	1	2	2	2	2 1	2	2	1	1 2	1	2	2	2 2	99	99	2	2	2	2	1	1 1	1	2
142	Majupriya	15	2	1 5	3	1	3	1	1	2	2	1	13	1	3	2	2	4	1 2	2 3	3 2	2	1	1	2 1	2	2	2	2	2 1	2	2	1	3 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1	2
143	Vidhya	17	2	1 5	4	1	3	2	1	2	1	1	15	1	2	2	2	1 :	3 2	2	2 1	1	2	2	1 4	2	2	2	2	2 1	2	2	1	4 2	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1	2
144	Gowri	13	2	1 4	4	1	3	2	1	2	2	1	13	1	5	2	2	1	1 3	3	3 2	2	2	3	2 1	3	2	2	2	2 2	2	2	1	3 3	1	2	1	1 2	99	99	2	2	1	2	2	2 2	2	2
145	Jenifer	17	2	1 5	3	3	4	1	1	2	2	1	13	1	1	2	2	4	1 2	3	3 2	2	2	3	2 1	2	2	2	2	1 2	2	2	1	2 3	1	2	2	2 2	99	99	1	2	2	2	2	2 2	2	2
146	Sona	19	2	1 5	4	. 3	3	1	1	2	1	1	14	2	99	2	1	1	1 2		5 2	2	2	3	2 4	3	2	2	2	2 2	2	2	1	4 3	1	2	1	1 1	4	4	1	2	2	2	2	2 2	2	2
147	Shiny Judith	16	2	1 5	6	3	3	1	1	2	1	1	13	1	2	2	1	1	1 2	2 5	5 1	1	2	2	2 1	2	2	2	2	2 1	2	2	1	4 3	1	2	1	1 2	99	99	1	2	2	2	2	2 2	2	2
148	Gayathri	15	2	1 5	4	3	3	2	1	2	1	1	14	1	1	2	1	1	1 2	5	5 1	1	2	2	2 4	2	2	2	2	1 2	2	2	1	5 3	1	2	1	1 2	99	99	1	2	2	2	2	2 2	. 2	2
149	Aishwarya	19	2	1 5	2	1	2	2	1	1	1	1	13	1	1	2	2	1	1 2	2 4	1 2	2	2	3	2 1	2	2	2	2	1 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	2	2
150	Ashwini	19	2	1 5	3	3	3	2	1	2	1	1	13	1	1	2	1	1	1 2	5	5 2	2	1	1	1 4	2	2	2	2	2 1	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	. 1	1
151	Janani	18	2	1 5	6	1	2	2	3	2	1	1	13	2	99	2	1	1	1 3	4	1 2	2	1	2	2 1	2	2	2	2	2 1	2	2	1	2 3	1	2	2	2 2	99	99	2	2	2	2	1	1 1	1	2
152	Jayasri	19	2	1 5	6	1	2	1	3	1	1	1	14	1	2	3	1	1	1 2	2 4	1 2	2	1	2	2 1	2	2	2	2	2 2	2	2	1	2 3	1	2	2	2 2	99	99	2	2	2	2	1	1 1	1	2
153	priscilla	19	2	1 5	4	3	3	1	1	1	1	1	13	1	1	1	1	1 :	2 1	. 2	2 2	2	2	2	1 4	2	2	1	1	1 2	2	2	1	3 3	1	2	1	1 2	99	99	1	2	2	2	2	2 2	2	2
154	Gayathri	17	2	1 5	4	1	4	2	1	1	1	1	13	1	1	2	1	2	1 1	. 3	3 2	2	2	2	1 2	3	2	2	2	2 2	2	2	1	1 5	1	2	2	2 2	99	99	2	2	2	2	1	2 1	2	1
155	Mariya Jovitha	17	2	1 5	4	. 3	3	1	1	2	1	1	13	1	1	2	2	1	1 2	2 4	1 2	2	2	3	2 1	2	2	2	2	2 2	2	2	1	3 5	1	2	1	1 2	99	99	1	2	2	2	2	2 2	2	1
156	Lavanya	19	2	1 5	1	1	3	2	1	2	1	1	13	2	99	2	1	1	1 2	5	5 2	2	2	3	2 1	2	2	1	1	2 2	2	2	1	5 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	2	2
157	Dhanalaks hmi	18	2	1 5	1	1	5	1	1	1	2	1	14	1	2	2	2	1	1 2	2 4	1 2	2	2	2	1 1	2	2	2	2	2 1	2	2	1	1 5	1	2	2	2 2	99	99	2	2	2	2	2	2 2	2	1
158	Sandhya	18	2	1 5	5	1	1	2	1	2	1	1	13	1	2	2	2	4	1 2	2 3	3 2	2	1	2	2 1	2	2	2	2	1 1	2	2	1	2 3	1	2	2	2 2	99	99	2	2	2	2	2	1 2	2	2
159	Priya	18	2	1 5	4	1	4	2	1	2	1	1	15	2	99	2	1	1	1 2	2 4	1 2	2	2	3	2 1	3	2	2	2	1 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	2	2
160	Sangeetha	17	2	1 5	4	1	3	2	1	1	1	1	13	1	2	3	1	1	1 2	2 4	1 1	1	2	2	2 4	2	2	2	2	2 1	2	2	1	5 3	1	2	1	1 2	99	99	2	2	2	2	2	1 2	2	1
161	Dinusha	14	2	1 4	. 3	1	3	2	1	2	1	1	12	1	4	2	2	1	1 3	3	3 2	2	1	2	2 1	2	2	2	2	2 2	2	2	1	5 3	1	2	1	1 2	99	99	2	2	2	2	2	1 1	2	2
162	Preethi	12	2	1 3	3	1	3	1	1	2	1	1	11	2	99	2	2	1	1 3	3	3 2	2	1	2	2 1	1	2	2	2	2 2	2	2	1	2 2	1	2	2	2 1	4	4	2	1	2	2	2	2 1	2	1
163	Sangeetha	14	2	1 4	. 2	1	3	1	1	2	2	1	12	2	99	2	3	3	1 2	3	3 1	1	2	2	2 1	1	2	2	2	2 1	2	2	1	1 3	1	2	2	2 1	4	4	2	2	2	2	1	1 2	2	2
164	Dhanalaks hmi	13	2	1 4	. 2	1	4	2	1	2	2	1	12	2	99	2	6	2	1 3	3 2	2 1	1	1	1	2 1	2	2	2	2	2 1	2	2	1	4 4	1	2	1	1 2	99	99	2	2	2	2	1	1 1	2	2
165	Pavithra	16	2	1 5	3	1	4	1	3	1	1	1	13	1	1	2	2	3	1 3	3 2	2 2	2	2	3	2 1	2	2	2	2	2 2	2	2	1	3 3	1	2	1	1 2	99	99	2	2	2	2	2	1 1	2	2
166	Punitha	19	2	1 5	2	1	2	2	1	2	1	1	13	2	99	2	2	1	1 2	2 4	1 1	1	2	2	2 1	2	2	2	2	2 1	2	2	1	2 3	1	2	2	2 2	99	99	2	2	2	2	2	1 2	2	1
167	Shalini	16	2	1 5	3	1	4	1	1	2	1	1	14	2	99	2	2	4	1 2	2 3	3 2	2	2	3	2 1	2	2	2	2	2 2	2	2	1	3 3	1	2	1	1 2	99	99	2	2	2	2	2	1 1	2	2
168	Anitha	19	2	1 5	2	1	3	1	2	2	1	1	13	1	2	2	2	1	1 2	2 4	1 2	2	2	3	2 4	3	2	2	2	2 2	2	2	1	4 2	1	2	1	1 2	99	99	1	2	2	2	2	2 2	2	2
169	Divya	18	2	1 5	3	1	3	1	3	2	1	1	12	2	99	1	2	3	1 2	2 2	2 2	2	1	2	1 1	2	2	2	2	2 2	2	2	1	3 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	2	1

170	Aaafrin Begum	14	2	1 4	4	2	2 2	2 1	1 3	3 2	2 1	1 1	1	12	2	99	2	1	4	1	2	4	2	2	2	3	2	1 3	3 2	2	2	1	2	2	2	1	5 3	1	2	1	1	2	99	99	2	2	2	2	2	2	2	2 1
171	Priyadhars hini	13	2	1 4	4	. 1	1 4	1	1 3	3 2	2	1 1	1	13	1	1	2	6	4	5	3	1	1	1	1	0	1 1	1 3	3 2	2	2	2	2	2	2	1	5 3	1	2	1	1	2	99	99	2	2	2	2	2	1	2	2 1
172	Amul	19	2	1 5	2	: 1	1 4	1 2	2 3	3 1	1 1	1 1	1	12	2	99	1	2	2	1	2	2	2	2	1	1	1 4	1 2	2 2	2	2	2	2	2	2	1	2 3	1	2	2	2	2	99	99	2	2	2	2	2	1	2	2 1
173	Monika	13	2	1 4	6	5 1	1 4	1 1	1 3	3 2	2 1	1 1	1	10	1	1	2	2	2	1	2	3	2	2	1	1	1 1	1 2	2 2	2	2	2	2	2	2	1	2 2	1	2	2	2	2	99	99	2	2	2	2	2	1	2	2 1
174	Sharmila	14	2	1 4	. 2	: 1	1 4	1 1	1 3	3 2	2 1	1 1	1	13	1	1	2	2	3	1	2	3	2	2	1	2	2	1 2	2 2	2	2	2	2	2	2	1	4 1	1	2	1	1	2	99	99	2	2	2	2	2	1	2	2 2
175	Sasikala	15	2	1 5	3	1	1 2	2 2	2 1	1 2	2 1	1 1	1	13	1	1	2	2	3	1	2	3	2	2	1	2	2	1 2	2 2	2	2	2	2	2	2	1	2 1	2	2	2	2	2	99	99	2	2	2	2	2	1	2	2 2
176	Anitha	19	2	1 5	2	. 1	1 3	3 2	2 1	1 1	1 1	1 1	1	14	1	1	2	2	4	1	2	3	1	1	2	2	2	1 3	3 1	1	1	1	2	1	2	1	3 3	1	2	1	1	2	99	99	2	2	2	2	2	1	2	2 2
177	Kamali	17	2	1 5	1	. 1	1 3	3 1	1 1	1 1	1 1	1 1	1	14	1	1	2	2	4	1	2	3	2	2	1	1	1 1	1 3	3 2	2	2	2	1	2	2	1	3 3	1	2	1	1	2	99	99	2	2	2	2	2	1	2	2 1
178	pavithra	17	2	1 5	2	: 1	1 4	1 2	2 2	2 2	2 2	2 1	1	13	2	99	3	2	4	1	2	2	1	1	2	2	2	1 2	2 2	2	2	2	1	2	2	1	2 3	1	2	2	2	2	99	99	2	2	2	2	2	1	2	2 2
179	deepa	13	2	1 3	2	: 1	1 4	1 2	2 1	1 2	2 2	2 1	1	12	2	99	1	6	4	1	3	1	2	2	2	3	2	1 1	. 2	2	2	2	1	2	2	1	2 3	1	2	2	2	2	99	99	2	2	2	2	2	2	2	2 2
180	Sandhiya	15	2	1 5	4	. 1	1 3	3 2	2 1	1 2	2 1	1 1	1	13	2	99	2	2	4	1	2	3	1	1	2	2	2	1 2	2 2	2	2	1	2	2	2	1	2 3	1	2	2	2	2	99	99	2	2	2	2	2	1	2	2 2
181	Anjali	16	2	1 5	1	. 1	1 3	3	3 1	1 2	2	1 1	1	11	2	99	1	2	4	1	2	2	1	1	2	2	2	1 2	2 2	2	2	2	1	2	2	1	3 4	1	2	1	1	2	99	99	2	2	1	2	2	1	1	2 2
182	Monika	16	2	1 5	5	1	1 2	2 2	2 1	1 2	2	1 1	1	12	1	4	2	1	1	1	1	4	2	2	2	3	2 2	2 2	2 2	2	2	2	1	2	2	1	3 5	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 2
183	Sandhiya	17	2	1 5	1	. 1	1 2	2 1	1 1	1 2	2	1 1	1	14	1	4	2	2	3	1	2	3	2	2	2	3	2	1 2	2 2	2	2	2	1	2	2	1	2 2	1	2	2	2	2	99	99	2	2	1	2	1	2	1	2 2
184	Ramya	14	2	1 4	. 3	1	1 4	1	1 2	2 2	2 1	1 1	1	11	2	99	1	2	4	1	2	2	2	2	1	2	2	1 2	2 2	2	2	1	1	2	2	1	3 4	1	2	1	1	2	99	99	2	2	2	2	2	2	2	2 2
185	Thilagavat hi	12	2	1 3	3	1	1 4	1	1 2	2 2	2 1	1 1	1	12	2	99	2	2	4	1	2	3	2	2	1	2	2	1 2	2 2	2	2	2	2	2	2	1	3 4	1	2	1	1	2	99	99	2	2	2	2	2	2	2	2 2
186	Shakthi	16	2	1 5	2	: 1	1 4	1 1	1 2	2 2	2 1	1 1	1	12	2	99	2	2	1	1	2	4	2	2	1	1	1	1 2	2 2	2	2	2	2	2	2	1	3 3	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 1
187	Harini	12	2	1 3	6	5 1	1 3	3 2	2 1	1 2	2 1	1 1	1	12	1	4	1	6	3	1	3	1	2	2	2	2	1 4	1 1	2	2	2	2	1	2	2	1	2 4	1	2	2	2	2	99	99	2	2	2	2	2	2	2	2 2
188	Roshini	15	2	1 5	6	5 1	1 2	2 2	2 2	2 1	1 1	1 1	1	12	2	99	2	6	4	1	3	2	2	2	2	3	2	1 2	2 2	2	2	2	1	2	2	1	3 3	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 2
189	geetha	17	2	1 5	6	5 1	1 4	1 2	2 1	1 2	2	1 1	1	14	2	99	2	1	1	1	2	5	2	2	2	3	2	1 2	2 2	2	2	2	2	2	2	1	3 5	1	2	1	1	2	99	99	2	2	1	2	1	1	1	2 2
190	keerthika	18	2	1 5	6	5 1	1 2	2 1	1 1	1 1	1 1	1 1	1	14	2	99	2	6	1	1	1	3	2	2	1	1	1	1 2	2 2	2	2	2	1	1	1	1 -	4 3	1	2	1	1	2	99	99	2	2	1	1	1	1	1	2 1
191	bhavani	15	2	1 5	2	. 1	1 4	1	1 1	1 2	2 1	1 1	1	14	1	4	2	6	2	1	1	3	1	1	2	2	2	1 3	3 2	2	2	2	1	1	2	1	3 3	1	2	1	1	2	99	99	2	2	1	2	1	1	1	2 2
192	haripriya	14	2	1 4	3	1	1 3	3 2	2 1	1 2	2 1	1 1	1	13	2	99	2	6	4	1	3	2	1	1	2	2	2	1 2	2 2	2	2	2	2	2	2	1	3 3	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 2
193	pavithra	19	2	1 5	3	1	1 3	3 2	2 1	1 2	2 1	1 1	1	14	2	99	2	6	1	1	2	4	1	1	2	2	2	1	2	2	2	2	1	2	2	1	2 3	1	2	2	2	2	99	99	2	2	2	2	1	1	1	2 1
194	latha	19	2	1 5	3	1	1 4	1 2	2 1	1 2	2 1	1 1	1	13	1	3	2	2	1	1	2	4	2	2	1	1	1 1	1 2	2 2	2	2	2	1	1	2	1	5 4	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 1
195	prithika	16	2	1 5	4	. 1	1 3	3 1	1 3	3 2	2 1	1 1	1	12	2	99	2	1	2	1	2	4	2	2	2	2	1	1 2	2 2	2	2	1	1	2	2	1	5 3	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 1
196	pavithra	16	2	1 5	3	1	1 1	1 2	2 1	1 2	2 1	1 1	1	12	1	2	2	1	3	1	2	4	2	2	2	3	2	1 2	2 2	2	2	1	1	1	2	1	3 3	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 2
197	abirami	15	2	1 5	4	1	1 3	3 1	1 1	1 2	2 1	1 1	1	12	2	99	2	6	4	1	2	3	2	2	2	3	2	1 2	2 2	2	2	2	2	2	1	1	4 3	1	2	1	1	2	99	99	2	2	2	2	2	1	1	2 2
198	nivetha	16	2	1 5	3	1	1 4	1	1 2	2 1	1 2	2 1	1	11	2	99	2	2	4	1	2	3	2	2	2	3	2	1 2	2 2	2	2	2	2	2	2	1	3 3	1	2	1	1	2	99	99	2	2	1	2	1	1	1	2 2
199	jothika	17	2	1 5	4	1	1 3	3 2	2 1	1 1	1 1	1 1	1	14	1	4	2	6	3	1	2	3	1	1	2	2	2	1 2	2 2	1	1	2	1	2	2	1	4 3	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 2
200	muthulaks hmi	18	2	1 5	2	: 1	1 5	5 1	1 3	3	1 2	2 1	1	13	2	99	2	1	1	1	2	5	1	1	2	2	2	1 2	2 2	2	2	2	1	2	2	1	4 3	1	2	1	1	2	99	99	2	2	1	2	1	1	1	2 2
201	geetha	16	2	1 5	2	: 1	1 5	5 2	2 3	3 1	1 2	2 1	1	12	1	4	2	2	3	1	2	3	2	2	2	3	2 4	1 2	2 2	2	2	2	2	2	2	1	3 3	1	2	1	1	2	99	99	2	2	2	2	1	1	1	2 2
202	keerthana	15	2	1 4	- 1	1	1 4	1 2	2 1	1 2	2 1	1 1	1	14	2	99	2	6	4	1	2	3	2	2	2	3	2	1 2	2 2	2	2	2	2	2	2	1	4 3	1	2	1	1	2	99	99	2	2	1	2	1	1	1	2 2
203	aswini	15	2	1 5	6	5 1	1 3	3 2	2 3	3 2	2 1	1 1	1	13	2	99	2	6	4	1	2	3	2	2	2	3	2	1 2	2 2	2	2	2	2	2	2	1	4 3	1	2	1	1	2	99	99	2	2	1	2	1	1	1	2 1
204	tamilselvi	14	2	1 4	4	. 1	1 2	2 1	1 1	1 2	2 1	1 1	1	12	1	2	2	6	4	1	2	3	2	2	1	1	1 1	1 2	2 2	2	2	2	2	2	2	1	4 3	1	2	1	1	2	99	99	2	2	1	2	1	1	1	2 1
205	anusuya	19	2	1 5	1	1	1 2	2 2	2 1	1 2	2 1	1 1	1	14	2	99	2	6	3	1	2	3	1	1	1	0	1 1	1 2	2 2	2	2	2	1	2	2	1	1 3	1	2	2	2	2	99	99	2	2	1	2	1	1	1	2 1

206	kamali	16	2	1 5	i 4	1	3	2	1	2	2 2	1	13	2	99	2	2	3	1 :	2	3 2	2	1	1	1	1 1	2	2	2	2	1 2	2	1	1	3 1	. 2	2	2 2	99	99	2	2	2	2	1	1	1	2 1
207	anjana	19	2	1 5	i 4	- 1	4	3	1	1	. 1	1	13	1	3	2	6	1	1 :	2	4 2	2	2	3	2	1 2	2 2	2	2	2	1 2	2	1	5	3 1	. 2	1	1 1	4	4	2	2	2	2	1	1	1	2 2
208	rajeshwari	14	2	1 4	5	1	2	1	1	2	2 1	1	12	2	99	2	1	4	1 :	2	4 2	2	2	3	2	1 2	2 2	2	2	2	2 1	2	1	3	3 1	. 2	1	1 2	. 99	99	2	2	1	2	1	1	1 2	2 2
209	jayaroja	17	2	1 5	i 4	1	1	2	2	2 2	2 1	1	13	1	1	2	2	4	1 :	2	3 1	1	2	2	2	1 2	2 2	2	2	1 :	2 2	2	1	2	2 1	. 2	2	2 2	99	99	2	2	2	2	1	1	1 2	2 2
210	divya	19	2	1 5	6 4	. 1	2	2	2	2 1	. 1	1	13	2	99	2	2	1	1 :	2	4 1	1	2	2	2	1 3	3 2	2	2	2	1 2	2	1	3	3 1	. 2	1	1 1	4	4	2	2	2	2	1	1	1 2	2 2
211	monisha	18	2	1 5	2	1	4	1	1	1	. 2	1	12	2	99	2	2	1	1 :	2	4 2	2	2	2	1	1 2	2 2	2	2	2	2 2	2	1	2	3 1	. 2	2	2 2	99	99	2	2	2	2	1	1	1 2	2 1
212	kalaiazhag u	19	2	1 5	3	1	2	2	1	1	. 1	1	14	1	2	2	2	3	1 2	2	3 2	2	1	1	1	1 1	2	2	2	2	1 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	2	2	2	1	2	1
213	manimega lai	18	2	1 5	1	1	4	1	3	3 1	. 1	1	14	1	1	2	2	3	1 2	2	3 2	2	1	1	1	1 3	3	2	2	2	1 1	2	1	5	3 1	. 2	1	1 2	99	99	2	2	2	2	1	1	1 2	2 1
214	kumutha	18	2	1 5	3	1	4	3	2	2 1	. 2	1	14	1	4	2	2	3	1 :	2	3 2	2	1	1	1	1 2	2 2	2	2	2	2 2	2	1	3	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2 2	2 1
215	rajathi	18	2	1 5	5 2	1	. 4	1	2	2 2	2 2	1	13	1	4	2	2	3	1 :	2	3 2	2	1	2	2	1 3	3 2	2	2	2	1 2	2	1	3	4 1	. 2	1	1 1	4	4	2	2	2	2	2	2	2 2	2 2
216	swetha	15	2	1 5	3	1	4	2	2	2 2	2 2	1	13	1	1	2	2	3	1 :	2	3 2	2	1	1	1	1 2	2 2	2	2	2	2 2	2	1	2	3 1	. 2	2	2 2	4	4	2	2	2	2	1	1	1 2	2 2
217	praveena	19	2	1 5	6	1	. 3	1	3	3 2	2 2	1	14	1	1	2	1	1	1 :	2	5 2	2	2	2	1	1 2	2 2	2	2	2	1 2	2	1	2	3 1	. 2	2	2 2	99	99	2	2	2	2	2	2	2 2	2 1
218	yasodha	19	2	1 5	5 2	1	5	3	2	2 1	. 2	1	14	1	1	2	2	3	1 :	2	3 2	2	2	3	2	1 3	3 2	2	2	1 :	2 2	2	1	2	3 1	. 2	2	2 2	2	99	2	1	2	2	2	2	2	1 2
219	sumithra	16	2	1 5	6	1	4	3	3	3 1	. 2	1	15	2	99	2	6	4	1	1	2 2	2	2	3	2	1 2	2 2	2	2	2	2 2	2	1	3	3 1	. 2	1	1 2	. 99	99	2	2	2	2	2	2	2	2 2
220	pradheepa	18	2	1 5	6	1	. 3	2	3	3 2	2 1	1	15	1	2	2	1	1	1 :	2	5 2	2	2	3	2	1 3	3 2	2	2	1 :	2 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2 2	2 2
221	divya	19	2	1 5	3	1	. 4	3	2	2 1	. 1	1	14	2	99	3	2	2	3	1	0 2	2	2	2	1	1 4	1 3	2	2	1 :	2 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	2	2	1	1	1 2	2 1
222	jaysri	18	2	1 5	i 4	. 1	4	2	1	2	2 2	1	13	1	1	3	2	3	1 :	2	2 2	2	2	2	1	1 2	2 2	2	2	1	1 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2	2 1
223	monika	17	2	1 5	i 4	1	4	2	1	2	2 2	1	13	1	1	3	2	4	1 2	2	2 2	2	2	2	1	1 2	2 2	2	2	2	1 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2	2 1
224	aswini	14	2	1 4	4	. 1	2	1	1	1	. 1	1	11	2	99	2	2	4	1 :	2	3 2	2	2	2	1	1 3	3 2	1	1	2	2 2	2	1	5	3 1	. 2	1	1 1	2	2	2	2	2	2	2	2	2	2 1
225	lavanya	13	2	1 3	4	1	2	2	1	1	. 1	1	11	2	99	2	2	4	1	2	3 2	2	2	2	1	1 3	3 2	2	2	2	1 2	2	1	5	3 1	. 2	1	1 1	2	2	2	2	2	2	2	2	2 :	2 1
226	nisha	13	2	1 4	4	1	1	2	1	1	. 2	1	11	2	99	1	2	1	1 :	3	2 1	1	2	2	2 4	4 2	2 2	2	2	2	1 2	2	1	3	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2	2 2
227	vinodhini	15	2	1 5	4	1	. 1	1	1	2	2 1	1	11	1	1	1	2	1	1	2	3 1	1	2	2	2	4 2	2 2	2	2	2	1 2	2	1	3	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2 2	2 2
228	punitha	17	2	1 5	3	1	2	3	1	2	2 1	1	13	2	99	2	2	1	1 :	2	3 2	2	2	3	2	1 2	2 2	2	2	2	1 2	2	1	3	3 1	. 2	1	1 1	4	4	2	2	2	2	2	2	2	2 2
229	hemalatha	15	2	1 5	4	1	3	1	1	2	2 1	1	11	1	1	2	2	1	1 :	2	4 1	1	2	2	2	1 2	2 2	2	2	1 :	2 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	1	2	2	1	2	2 2
230	poornima	13	2	1 3	4	1	3	2	1	2	2 1	1	12	1	1	2	2	1	1 :	2	4 1	1	2	2	2	1 3	3 2	2	2	2	2 2	2	1	5	3 1	. 2	1	1 2	99	99	2	2	1	2	2	1	2	2 2
231	janani	14	2	1 4	5	1	3	2	2	2 2	2 1	1	13	1	1	2	2	1	1	2	4 2	2	2	3	2	1 2	2 2	2	2	1	2 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	1	2	1	1	2	2 2
232	kalaiselvi	19	2	1 5	4	- 1	3	1	3	3 1	. 2	1	14	2	99	2	1	1	1 :	2	5 2	2	2	3	2	1 2	2 2	2	2	2	1 2	2	1	2	6 1	. 2	2	2 1	2	2	1	2	2	2	2	2	2	2 2
233	lakshmi	12	2	1 3	1	1	2	2	2	2 2	2 1	1	11	2	99	2	6	3	1 :	3	1 1	1	1	0	1	1 3	3 2	2	2	1	1 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	2	2	2	1	2	2 1
234	agustia	17	2	1 5	5	3	3	2	3	3 2	2 1	1	13	2	99	2	6	4	1 :	2	3 2	2	2	3	2	1 2	2 2	2	2	1	1 2	2	1	3	3 1	. 2	1	1 1	4	4	1	2	2	2	2	2	2	2 2
235	afia	18	2	1 5	5	3	3	1	3	3 2	2 1	1	13	1	2	2	2	1	1	2	4 1	1	2	2	2	1 2	2 2	2	2	1	1 2	2	1	4	3 1	. 2	1	1 2	99	99	1	2	2	2	2	2	2 2	2 2
236	sangeetha	19	2	1 5	4	. 3	3	1	1	2	2 1	1	13	2	99	2	2	1	1	2	4 1	1	2	2	2	1 2	2 2	2	2	1	2 2	2	1	3	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2 2	2 2
237	saranya	17	2	1 5	3	1	. 4	2	1	2	2 1	1	12	2	99	2	2	1	1	2	4 2	2	2	3	2	1 2	2 2	2	2	2	1 2	2	1	3	3 1	. 2	1	1 2	99	99	2	2	2	2	2	2	2	2 2
238	hemavathi	18	2	1 5	1	1	. 2	1	1	2	2 1	1	12	2	99	2	2	2	1	2	3 1	1	2	2	2	1 2	2 2	2	2	2	1 2	2	1	3	2 1	. 2	1	1 2	99	99	2	2	2	2	1	1	1 2	2 1
239	shalini	18	2	1 5	4	1	. 4	2	3	3 1	. 2	1	12	2	99	2	2	1	1	2	4 2	2	2	3	2	1 3	3 2	2	2	1	2 2	2	1	4	3 1	. 2	1	1 2	99	99	2	2	2	2	1	1	1 2	2 1
240	keerthana	16	2	1 5	4	1	4	2	3	3 2	2 2	1	14	1	2	2	1	1	1	2	5 2	2	2	2	1	1 2	2 2	2	2	1	2 2	2	1	3	3 1	. 2	1	1 2	99	99	2	2	2	2	1	1	1 2	2 1
241	deepika	18	2	1 5	3	1	4	1	1	2	1	1	13	2	99	2	2	4	1	2	3 2	2	2	3	2	1 2	2 2	2	2	2	2 2	2	1	2	4 1	. 2	2	2 2	99	99	2	2	2	2	2	2	2 2	2 2
242	pavithra	17	2	1 5	4	1	. 3	1	1	2	1	1	12	2	99	2	1	1	2	1	3 2	2	2	2	1	4 2	2 2	2	2	1	2 2	2	1	3	3 1	. 2	1	1 2	99	99	2	2	2	2	1	1	1 2	2 2

243	nivashini	14	2	1 4	4	1	3	2	1	2	1	1	12	2	99	2	1	1	1 2	2 5	5 2	2	2	3	2 1	3	2	2	2	1 :	2 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2	2 1	1	1	2 2
244	monika	17	2	1 5	6	1	1	1	3	2	1	1	13	1	1	2	2	1	1 2	2 4	1 2	2	1	2	2 1	2	2	2	2	2	2 2	2	1	4 4	1	2	1	1	2 9	9 9	9	2	2	2	2 1	1	1	2 2
245	archana	18	2	1 5	3	1	2	1	1	2	1	1	13	2	99	2	2	1	1 2	2 4	1 2	2	1	2	2 1	2	2	2	2	2	2 2	2	1	4 4	1	2	1	1	2 9	9 9	9	2	2	2 ′	2 1	1	1	2 2
246	soniya	19	2	1 5	3	1	2	1	1	2	1	1	13	2	99	2	2	2	1 2	2 3	3 2	2	2	3	2 1	2	2	2	2	2	1 2	2	1	2 3	3 1	2	2	2	1 4	. 4	4	2	2	2 :	2 1	1	1	2 2
247	monika	18	2	1 5	2	1	2	2	1	1	1	1	14	1	1	2	6	3	1 2	2 3	3 1	1	1	1	2 1	2	2	2	2	2	2 2	2	1	3 3	1	2	1	1	2 9	9 9	19	2	2	2 :	2 1	1	1	2 2
248	devikala	16	2	1 5	2	1	3	1	2	1	1	1	14	1	1	2	1	1	2 2	2 4	1 1	1	2	1	2 3	2	2	2	2	2	2 2	2	1	4 3	3 1	2	1	1	2 9	9 9	9	2	2	1 ′	2 1	1	1	2 2
249	kayalvizhi	15	2	1 4	3	1	3	2	1	2	1	1	12	1	1	2	2	4	1 2	2 3	3 2	2	1	1	1 1	2	2	2	2	1	2 2	2	1	5 3	1	2	1	1	1 4	ļ. Z	4	2	2	1 ′	2 2	1	1	2 1
250	madhumit ha	13	2	1 4	3	1	3	3	1	2	1	1	12	1	1	2	1	1	1 2	2 5	5 2	2	2	2	1 1	2	2	2	2	1	2 2	2	1	3 3	1	2	1	1	2 9	9 9	9	2	2	2	2 2	1	1	2 2
251	jennifer	15	2	1 5	3	1	2	1	1	2	1	1	11	1	1	2	1	1	1 2	2 5	5 2	2	2	3	2 1	2	2	2	2	2	2 2	2	1	4 3	3 1	2	1	1	2 9	9 9	9	1	2	2	2 2	2	2	2 2
252	ramya	13	2	1 3	4	1	4	2	3	2	1	1	10	2	99	2	6	4	1 2	2 3	3 2	2	2	3	2 4	2	2	2	2	2	2 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	1 ′	2 2	1	1	2 1
253	sandhiya	14	2	1 4	3	1	4	1	1	2	2	1	13	2	99	1	2	1	1 2	2 3	3 2	2	2	3	2 1	2	2	2	2	1 :	2 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2	2 2	2	2	2 2
254	abitha	14	2	1 4	2	1	3	2	1	2	2	1	10	1	2	2	1	1	1 2	2 5	5 2	2	2	2	1 1	2	2	2	2	2	1 2	2	1	4 3	3 1	2	1	1	2 9	9 9	9	2	2	2	2 2	2	2	2 1
255	sneha	18	2	1 5	2	1	3	1	1	2	2	1	10	2	99	1	1	1	2 2	2 3	3 2	2	2	2	1 4	2	2	1	1	2	2 2	2	1	3 3	1	2	1	1	2 9	9 9	9	2	2	2 ′	2 2	2	2	2 2
256	oviya	13	2	1 4	2	1	3	3	1	2	2	1	12	2	99	2	6	4	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	2	2 2	2	1	3 3	1	2	1	1	2 9	9 9	9	2	2	2	2 2	2	2	2 1
257	logeshwari	14	2	1 4	4	1	3	2	1	2	1	1	13	1	2	2	1	3	1 2	2 4	1 2	2	2	3	2 1	3	2	2	2	1	1 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2 2	2 2	2	2	2 2
258	divya	15	2	1 4	4	1	4	1	1	2	2	1	12	1	1	1	6	4	1 2	2 2	2 2	2	2	3	2 1	2	2	2	2	2	2 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2 2	2 1	1	1	2 1
259	anushreey a	14	2	1 4	1	1	4	2	3	2	2	1	13	2	99	1	6	4	1 2	2 2	2 1	1	2	2	2 1	2	2	2	2	2	2 2	2	1	5 3	1	2	1	1	2 9	9 9	9	2	2	1	2 1	1	1	2 2
260	jeevitha	16	2	1 5	4	1	3	1	1	2	1	1	13	1	1	2	1	1	1 2	2 5	5 2	2	2	3	2 1	3	2	2	2	2	1 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2	2 2	2	2	2 2
261	Priyadhars hini	16	2	1 5	2	1	3	2	1	2	2	1	14	2	99	2	6	3	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	1	2 2	2	1	4 3	1	2	1	1	2 9	9 9	19	2	2	2	2 1	1	1	2 2
262	sivaranjani	19	2	1 5	4	1	1	1	1	2	1	1	14	2	99	2	1	1	1 2	2 5	5 2	2	2	2	1 2	3	2	2	2	2	2 1	2	1	4 3	1	2	1	1	1 4	. 4	1	2	2	2	2 1	1	1	2 1
263	Priyadhars hini	18	2	1 5	4	1	1	2	1	2	1	1	14	2	99	2	2	3	1 2	2 3	3 2	2	2	2	1 2	3	2	2	2	2	2 1	2	1	4 3	1	2	1	1	1 4	ļ	1	2	2	2	2 1	1	1	2 1
264	jamuna	13	2	1 4	2	1	3	2	1	2	1	1	12	2	99	2	2	4	1 3	3 2	2 2	2	1	2	2 1	2	2	2	2	2	1 2	2	1	2 3	1	2	2	2	2 9	9 9	19	2	2	2	2 2	1	1	2 2
265	indra	18	2	1 5	2	1	2	1	1	2	1	1	13	2	99	2	2	4	1 2	2 3	3 2	2	1	2	2 1	2	2	2	2	2	1 2	2	1	2 3	1	2	2	2	2 9	9 9	19	2	2	2	2 1	1	1	2 2
266	deepika	16	2	1 5	4	1	2	2	3	2	1	1	13	2	99	2	2	1	1 2	2 4	1 2	2	2	3	2 1	2	2	2	2	2	2 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2 2	2 1	1	1	2 2
267	Priyadhars hini	18	2	1 5	4	1	3	1	3	2	1	1	13	2	99	2	2	1	1 2	2 4	1 2	2	2	3	2 1	2	2	2	2	2	2 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2 2	2 1	1	1	2 2
268	meena	19	2	1 5	1	1	3	2	2	2	2	1	13	1	1	2	2	2	1 2	2 3	3 2	2	1	1	1 1	2	2	2	2	2	1 2	2	1	2 2	1	2	2	2	2 9	9 9	9	2	2	1 .	2 1	1	1	2 1
269	vaishnavi	15	2	1 5	4	1	3	2	2	2	1	1	13	1	1	2	2	2	1 2	2 3	3 2	2	1	1	1 1	2	2	2	2	2	1 2	2	1	2 2	2 1	2	2	2	2 9	9 9	9	2	2	1 (2 1	1	1	2 1
270	pooja	17	2	1 5	1	1	2	2	1	1	1	1	14	2	99	2	2	1	1 2	2 4	1	1	2	2	2 1	2	2	2	2	2	1 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2	2 1	2	1	2 1
271	geetha	19	2	1 5	4	1	2	2	1	2	1	1	13	2	99	2	6	1	1 2	2 4	1	1	2	2	2 1	2	2	2	2	2	1 2	2	1	5 4	1	2	1	1	2 9	9 9	9	2	2	2	2 1	1	1	1 2
272	srimathi	14	2	1 4	5	1	3	2	1	1	1	1	13	2	99	2	6	3	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	2	1 2	2	1	5 3	1	2	1	1	2 9	9 9	9	2	2	2	2 1	1	1	1 1
273	pavithra	14	2	1 4	4	1	1	2	1	1	1	1	10	2	99	2	1	1	1 2	2 5	5 1	1	2	2	2 1	2	2	2	2	2	1 2	2	1	3 4	1	2	1	1	2 9	9 9	19	2	2	2 ′	2 1	1	1	1 2
274	sangeetha	17	2	1 5	4	1	1	3	1	1	1	1	13	1	4	2	2	1	1 2	2 4	1	1	2	2	2 1	2	2	2	2	2	1 2	2	1	3 4	1	2	1	1	2 9	9 9	9	2	2	2 ′	2 1	1	1	1 2
275	roja	19	2	1 5	5	1	5	2	1	2	1	1	14	2	99	2	6	4	1 2	2 3	3 1	1	1	0	1 1	2	2	2	2	2	1 2	2	1	5 3	1	2	1	1	1 4	. 4	1	2	2	2 :	2 1	1	1	2 1
276	kowsalya	19	2	1 5	2	1	3	2	2	2	1	1	14	2	99	2	2	2	1 2	2 3	3 1	1	1	0	1 1	2	2	2	2	2	1 2	1	1	3 4	1	2	1	1	2 9	9 9	19	2	2	2	2 1	1	1	2 1
277	dillima	17	2	1 5	1	1	4	2	1	2	2	1	13	1	1	2	2	4	1 3	3 2	2 2	2	2	3	2 1	2	2	2	2	1	2 2	2	1	4 3	1	2	1	1	2 9	9 9	9	2	2	2	2 1	1	1	2 2
278	ramya	15	2	1 4	1	1	4	3	1	2	2	1	14	1	1	2	2	4	1 2	2 3	3 2	2	1	2	2 1	1	2	2	2	2	2 2	2	1	2	1	2	2	2	2 9	9 9	9	2	2	2	2 1	1	1	2 2

279	priyanka	19	2	1 5	5	2 1	3	3	1	2	2	1	13	2	99	2	2	1	1 2	2 4	4 2	2	2	3	2	1	2	2 2	2	1	2	2	2	1 5	3	1	2	1	1 2	99	99	9	2	2 2	2 2	1	1	1	2	2
280	niranjana	14	2	1 4	1	3 1	3	1	3	2	2	1	12	1	1	2	1	1	1 2	2 :	5 2	2	2	3	2	1	3	2 2	2	2	1	2	2	1 5	3	1	2	1	1 2	99	99	_	2	2 2	2 2	1	1	1	2	2
281	swathi	12	2	1 3	3	3 1	4	1	2	2	1	1	9	2	99	2	2	3	3 2	2 2	2 2	2	1	2	2	3	2	2 2	2	2	2	2	2	1 2	3	1	2	2	2 1	4	4	1	2	2 2	2 2	2	2	2	2	1
282	shalini	13	2	1 3	3	6 1	2	2	2	2	1	1	12	2	99	3	2	4	1 2	2 2	2 1	1	2	2	2	1	2	2 2	2	2	2	2	2	1 4	4	1	1	2	2 2	99	99	9	1	2 2	2 2	2	2	2	2	1
283	logeshwari	13	2	1 3	3	4 1	3	1	1	2	1	1	11	1	2	2	1	4	1 2	2 4	4 1	2	2	1	1	1	2	2 2	2	2	1	2	2	1 4	3	1	1	2	2 2	99	99	9	2	2	2 2	2	1	2	2	1
284	vishali	12	2	1 3	3	7 1	2	1	2	2	1	1	12	1	3	1	6	4	1 2	2 2	2 1	1	2	1	1	1	2	2 2	2	2	1	2	2	1 5	3	1	1	2	2 2	99	99	9	2	2	2 2	2	1	2	2	1
285	akshaya	13	2	1 3	3	4 1	4	2	1	2	1	1	11	1	2	1	2	4	1 2	2 2	2 2	2	2	2	1	1	2	2 2	2	2	1	2	2	1 3	3	1	2	1	1 1	4	4	ļ	2	2	2 2	2	2	2	2	1
286	jeevitha	13	2	1 3	3	5 1	3	1	2	2	1	1	12	1	1	2	2	4	2 2	2 2	2 1	1	2	2	2	2	2	2 2	2	1	2	2	2	1 4	3	1	2	1	1 1	2	2	2	2	2 2	2 2	2	2	2	2	1
287	jayasri	18	2	1 5	5	3 1	4	1	2	2	2	1	13	2	99	2	1	3	1 2	2 4	4 2	2	2	2	1	1	4	2 2	2	2	2	2	2	1 3	3	1	2	1	1 2	99	99	9	2	2 2	2 2	2	2	2	2	1
288	sadhana	13	2	1 3	3	4 1	4	2	1	2	1	1	10	2	99	2	2	3	1 2	2 3	3 2	2	2	2	1	1	2	2 2	2	2	2	2	2	1 3	3	1	2	1	1 2	99	99	9	1	2 2	2 2	2	2	2	1	1
289	monika	14	2	1 4	1	3 1	4	2	1	2	1	1	13	2	99	2	1	1	1 :	1 4	4 1	1	1	0	1	1	3	2 2	2	2	1	2	2	1 4	3	1	1	2	2 2	99	99	9	2	2 2	2 1	2	2	2	2	1
290	devikala	16	2	1 5	5	4 1	3	2	1	2	2	1	11	1	2	1	2	1	1 2	2 3	3 2	2	2	2	1	1	2	2 2	2	2	1	2	2	1 2	3	1	1	2	2 1	4	4	1	2	2 2	2 2	2	1	2	2	1
291	jamuna	15	2	1 4	1	4 1	4	1	1	2	1	1	13	1	2	2	1	4	1 2	2 3	3 2	2	2	3	2	1	2	2 2	2	2	1	2	2	1 3	3	1	1	2	2 2	99	99	_	2	2 2	2 2	2	2	2	2	2
292	sariga	16	2	1 5	_	3 1	3	1	2	2	2		13	2	99	2	-	4	1 2		4 2	1-	2	2	1	1	2	2 1	1	2	2	1	2	1 2	3	1	1	2	2 2		99	_		2 2		2	_		2	1
293	parvathi	16	2	1 5	5	4 1	4	2	1	2	1	1	14	1	1	2	2	3	1 2	2 3	3 2	2	2	2	1	1	2	2 2	2	1	2	2	2	1 2	4	1	1	2	2 2	99	99	9	2	2 2	2 2	2	2	2	2	1
294	varalaksh mi	11	2	1 3	3	1 1	4	2	1	2	1	1	10	2	99	1	1	2	2	1 2	2 2	2	1	1	1	1	2	2 2	2	2	1	2	2	1 4	4	1	1	2	2 2	99	99	9	2	2	1 2	2	2	2	2	1
295	getayal	12	2	1 3	3	5 3	3	1	2	2	1	1	10	2	99	2	6	4	3 2	2 2	2 2	2	2	2	1	1	1	2 2	2	2	1	2	2	1 2	3	1	2	2	2 2	. 99	99	9	1	2 2	2 2	2	2	2	2	2
296	mercy	13	2	1 3	3	4 3	3	1	1	2	1	1	13	2	99	2	2	3	1 2	2 3	3 2	2	1	1	1	1	2	2 2	2	2	2	2	2	1 3	3	1	2	1	1 2	99	99	9	1	2	2 2	2	2	2	2	1
297	jaya priya	19	2	1 5	5	4 1	4	2	1	2	1	1	10	2	99	2	2	1	1 2	2 4	4 2	2	2	2	1	1	2	2 2	2	2	1	2	2	1 3	1	1	1	2	2 2	99	99	9	2	2 2	2 2	2	2	2	2	1
298	rakshitha	14	2	1 4	4	4 1	3	1	1	2	1	1	10	2	99	2	2	3	1 2	2 3	3 2	2	2	2	1	1	2	2 2	2	2	1	2	2	1 3	3	1	1	2	2 2		99	9	1	2 2	2 2	2	2	2	2	1
299	anitha	14	2	1 4	1	6 1	3	2	2	2	1	1	12	1	3	2	2	1	1 2	2 4	4 1	1	1	0	1	1	2	2 2	2	2	1	2	2	1 4	1	1	1	2	2 2	99	99	9	2	2 2	2 1	1	1	1	1	1
300	najura	11	2	1 3	3	5 2	2	1	2	2	1	1	10	2	99	2	6	4	1 :	1 :	1 2	2	1	1	1	1	4	2 2	2	2	2	1	2	1 2	3	1	1	2	2 1	4	4	ļ.		2	1 2	2	1		2	1
301	mansi	11	2	1 3	_	3 3	3	1	2	2	1		11	2	99	1	6	4	1 2	2 2	2 2	2	1	1	1	1	4	2 2	2	2	2	2	2	1 2	3	1	1	2	2 1	4	4			2 2	2 2	2	2		2	1
302	yashika	11	2	1 3	_	6 1	2	1	1	2	1		11	1	4	1		3	1 2	2 2	2 1	1	2	2	2	1	2	2 2	2	2	2	1	2	1 3	4	1	1	2	2 2		99	_	-	2 2	2 2	2	1		2	2
303	nivetha	11	2	1 3	-	1 1	4	2	1	2	1		11	1	4	1	-	3	1 2	2 2	2 1	1	2	2	2	1	2	2 2	2	2	2	2	2	1 2	4	1	1	2	2 1	5	5		-	2 2	2 2	2	1		2	2
304	leena	11	2	1 3	+	3 3	3	1	2	2	1	-	11	2	99	2		3		2 4	4 2	2	2	2	1	-	3	2 2	2	2	1	2	2	1 4	3	1	2	1	1 1	+	4	-+		2 2	2 2	2			2	1
305	divya	12	2	1 3	+	3 1	2	2	2	2	1		11	2	99	2		3		2 3		1	2	1	1	_	3	2 2	2	2	1	2	2	1 4	3	1	1	2	2 1	4	4		_	2	1 2	2			2	1
306	catherine	12	2	1 3	-	2 3	2	3	1	2	1		11	2	99	1		_	2 2	-	1 2	+-	2	2	-+	-	_	2 2	1	+ +	-	2	2	1 5	+	1	1	2	2 1		4		_	2 2	2 2	2	-	-	2	1
307 308	yuvashree	12	2	1 3	_	6 1	2	3	2	2	1	1	10	1	4	1	-	4		2 3		+-	1	1	-		_	2 2	+-			2	2	1 4	3	1	1	2	2 2		99			2 2	1 2	2	2		2	1
	abiramee	11	2	1 3	-	/ I	1	2	2	2	1	1	10	2	99	1		4	5	2 3 1 2		-	2	2	1	_	_	2 2 2	2	2	1	-+	2	-	3	1	1	2	2 2		-		_	2 2	2 2	1	1	-	2	1
309 310	dharani geetha	11	2	1 3	+	6 3	4	2	1	2	1	1	10	2	99	2	1		2 2	-		+-	1	1	1	-	2	2 2	2	1	2	2	2	1 4	3	1	2	2	2 2	99	99	_	_	2 2	2 2	2	-	_	_	2
311	rasika	14	2	1 4	`-	6 2	1	1	1	2	1		13	2	99	2	1	1	1 2			1-	2	2		_	_	2 2	_			_	2	1 4	3	1	1	2	2 2		99			2	1 2	2			_	1
311	keerthana	14	2	1 4	`+	5 1	3	1	2	2	1		12	2	99	2	1	1	1 4			╀	2	2		-	-	2 2	4-	+	-	-+	2	1 3		1	1	2	2 2	_	99	_		2 2	2 2	+	-	-		1
313	safia farin	15	2	1 4	_	5 2	-	2	2	2	1		13	2	2	2	3	1 1		2 3		+-	1	1		•	_	2 2	-			-+	2	1 2	4	1	2	1	1 2		99	_		2 2		2	_	_	2	1
314	rakshitha	15	2	1 4	-	4 1	2	1	1	2	1		11	1	1	2		2	1 2	-		2	2	2	1	-	-	2 2	+-	+=+	1	-+	2	1 4	3	1	-	2	2 2		99		_	2 2		2		-		1
315	vidhyayan	15	2	1 4		5 1		1	1	2	1	-	13	2	99	1	1	1	+			╁	2	2	1	-	-	2 2			-	-	2	1 4	3	1	-	-	2 2		99	-+	-	-	2 2					1
313	i	15	2	1 4	+	3 1	1	1	1	2	1	1	13	2	99	I	1	1	1 2	2 4	+ 2	2	2	2	1	1	2	2 2	2	1	2	2	2	1 4	5	1	1	2	2 2	99	99	9	1	2 1	2 2	2	2	2	2	1

316	diyasree	14	2	1 -	4	6 1	2	1	. 2	2 2	1	1	11	2	99	2	2	4	1	2	3 2	2	2	2	1	1	2 2	2 2	2	1	1 2	2 2	2 1	4	3	1	2	1 1	2	99	99		2 2	2	2	2	2	2	2	2
317	beauty	14	2	1 .	4	3 3	4	2	1	2	1	1	12	1	1	2	2	4	1	2	3 2	2	2	2	1	1	2 2	2 2	2	1	1 2	2 2	2 1	4	3	1	1 2	2 2	2	99	99	1	1 2	2	2	2	2	2	2	2
318	priya kruthika	14	2	1 .	4	4 1	1	1	1	2	-	1	12	2	99	1	2	4	1	2	2 2	2	2	2	1	1	2 1	2 2	2	2	2 2	2 2) 1	3	3	1	1 '	2 2	2	99	99	_	_	_	1	2	1		2	2
319	kedhara	14	2	_	•	6 2	3	1	1	2	+	1	13	2	99	2		1	_	_	5 2	<u> </u>		2	-+	_	- -	2 2	<u> </u>	-	_		2 1	4	3	1	1 2	_	+	99	99	_	1	4-		2	2	_		2
320	mahalaksh	14	2	1 .	4	4 1	2	1	. 2	2 2	1	1	12	2	99	2	1	1	2	2	5 2	2		1	<u>_</u>		_	2 2	2		2 2	2 2	2 1	1	1	1	1 2	2 2	2	99	99	+		+	2	2	2	2	2	1
321	mi madhu	14	2	1 .	4	4 1	4	2	2 2	2 2	1	1	12	2	99	2	1	4	1	2	4 1	1	2	1	1	1	1 :	2 2	2		2	1 2	2 1	2	3	1	1 :	2 2	2	99	99	+	2 2	2	1	2	1	2	1	1
322	janani	15	2	1 -	4	5 1	3	1	1	2	1	1	11	2	99	2	1	1	3	2	3 2	2	2	2	1	3	2 2	2 2	2	2	2	1 2	2 1	4	3	1	1 2	2 2	2 2	99	99	_	2 2		1	2	2	2	2	1
323	swetha	15	2	1 -	4	6 1	1	2	: 1	. 2	1	1	13	2	99	2	2	4	1	2	3 2	2	2	3	2	1	2	2 2	2	2	1 2	2 2	2 1	4	3	1	1 2	2 2	2	99	99	2	2 2	2	2	1	2	1	1	1
324	arthi	15	2	1 -	4	7 1	1	2	1	. 2	1	1	12	1	2	2	2	1	1	2	4 2	2	1	1	1	1	2	2 2	2	2	1 2	2 2	2 1	3	4	1	1 2	2 2	2	99	99	2	2 2	2	2	2	2	2	2	1
325	riddhika	14	2	1 -	4	5 1	4	1	. 2	2	1	1	11	2	99	2	1	4	1	2	3 1	1	2	1	1	1	1 2	2 2	2	2	1 2	2 2	2 1	1	3	1	1 2	2 2	1	4	4	2	2 2	2	1	2	1	1	1	1
326	meghavars hini	15	2	1	4	6 1	1	1	. 2	2	1	1	12	2	99	2	2	1	5	1	2 2	2	1	2	2	1	4	2 2	2	2	2	2 2	2 1	4	3	1	1 2	2 2	2	99	99	2	2 2	1	1	2	1	2	2	1
327	dharshini	15	2	1	4	2 1	4	1	1	. 2	2	1	12	1	1	2	2	1	5	2	3 2	2	1	1	1	3	2	2 2	2	1	2 2	2 2	2 1	3	2	1	2	1 1	2	99	99	2	2 2	2	2	2	1	1	2	1
328	keerthana	18	2	1 :	5	4 1	1	2	. 1	. 2	1	1	14	1	2	3	2	3	1	2	3 2	2	2	3	2	2	3 2	2 2	2	2	1	1 2	2 1	4	3	1	2	1 1	1	4	4	2	2 2	2	2	1	1	1	2	1
329	sivaranjani	19	2	1 :	5	4 1	1	1	1	. 2	1	1	14	1	2	2	1	1	1	2	5 2	2	2	3	2	2	3 2	2 2	2	2	2	1 2	2 1	4	3	1	2	1 1	1	4	4	2	2 2	2	2	1	1	1	1	1
330	priyadhars hini	16	2	1	5	2 1	3	2	1	2	2	1	14	1	1	2	6	3	1	2	3 2	2	2	3	2	1	2	2 2	2	1	2	2 2	2 1	4	3	1	2	1 1	2	99	99	2	2 2	2	2	1	1	1	2	2
331	revathi	12	2	1	3	2 1	3	1	1	. 2	2	1	11	1	1	1	2	1	1	2	3 2	2	1	2	2	4	1 :	2 2	2	2	1 2	2 2	2 1	1	2	1	2	2 2	2	99	99	2	2 2	2	2	1	1	1	1	2
332	mekala	15	2	1 -	4	3 1	3	1	. 1	. 2	2	1	13	1	3	2	2	4	1	2	3 2	2	1	2	2	1	2	2 2	2	2	1 2	2 2	2 1	3	3	1	2	1 1	. 2	99	99	2	2 2	2	2	1	1	1	1	2
333	Gayathri	17	2	1	5	4 1	2	2	1	1	1	1	13	1	4	2	1	2	1	1	3 2	2	2	2	1	2	3 2	2 2	2	2	2 2	2 2	2 1	1	5	1	2	2 2	2	99	99	2	2 2	2	2	1	2	1	2	1
334	eunice	17	2	1 :	5	4 3	3	1	1	. 2	1	1	13	1	1	2	2	1	1	2	4 2	2	2	3	2	1	2	2 2	2	2	2 2	2 2	2 1	3	5	1	2	1 1	2	99	99	1	1 2	. 2	2	2	2	2	2	1
335	sindhuja	19	2	1 :	5	1 1	3	2	2	2	1	1	13	1	2	2	1	1	1	2	5 2	2	2	3	2	1	2	2 1	1	2	2 2	2 2	2 1	5	3	1	2	1 1	2	99	99	2	2 2	2	2	2	2	2	2	2
336	nivetha	18	2	1 :	5	1 1	5	1	1	1	1	1	14	1	2	2	2	1	1	2	4 2	2	2	2	1	1	2	2 2	2	2	1 2	2 2	2 1	1	5	1	2	2 2	2	99	99	2	2 2	2	2	2	2	2	2	1
337	Sandhya	18	2	1 :	5	5 1	1	2	1	. 2	1	1	13	1	4	2	2	4	1	2	4 2	2	1	2	2	1	2	2 2	2	1	1 2	2 2	2 1	2	3	1	2	2 2	2	99	99	2	2 2	2	2	2	1	2	2	2
338	anjali	19	2	1 :	5	4 1	4	2	1	1	1	1	13	1	3	2	6	1	1	2	4 2	2	2	3	2	1	2	2 2	2	2	1 2	2 2	2 1	5	3	1	2	1 1	1	4	4	2	2 2	2	2	1	1	1	2	2
339	shabnam	14	2	1 -	4	5 1	2	1	2	2	1	1	12	1	4	2	1	4	1	2	4 2	2	2	3	2	1	2 2	2 2	2	2	2	1 2	2 1	3	3	1	2	1 1	2	99	99	_	2 2	1	2	1	1	1		2
340	sharmila	17	2	_	_	4 1	1	2	: 3	2	1	1	13	1	1	2		4	1	2	3 1	1	2	2	2	1	2 2	2 2	2	1	2 2	2 2	2 1	2	2	1	2 2	2 2	_	99	99	2		4-	2	1	1	1		2
341	saveetha	19	2	_	_	4 1	2	2	2	1	1	1	13	1	2	2	2	1	1	2	4 1	1	2	2	2	1	3 2	2 2	2	2	1 2	2 2	2 1	3	3	1	2	1 1	1	4	4	2	2 2	2	2	1	1	1	2	2
342	abinaya	18	2	1 :	5	2 1	4	1	. 1	1	2	1	12	1	2	2	2	1	1	2	4 2	2	2	2	1	1	2 2	2 2	2	2	2 2	2 2	2 1	2	3	1	2 2	2 2		99	99	2	2 2	2	2	1	1	1	2	1
343	pradheepa	18	2	1 :	5	6 1	3	2	: 3	2	1	1	13	1	2	2	1	1	1	2	5 2	2	2	3	2	1	3 2	2 2	2	1	2 2	2 2	2 1	4	3	1	2	1 1	2	99	99	2	2 2	2	2	2	2	2	2	2
344	sudha	19	2	2	5	3 1	4	3	2	1	1	1	14	1	4	3	2	2	3	1	1 2	2	2	2	1	1	4 :	3 2	2	1	2 2	2 2	2 1	4	3	1	2	1 1	2	99	99	2	2 2	2	2	1	1	1	2	1
345	jeevitha	18	2	1 :	5	4 1	4	2	1	. 2	2	1	13	1	1	3	2	3	1	2	2 2	2	2	2	1	1	2 2	2 2	2	1	1 2	2 2	2 1	4	3	1	2	1 1	2	99	99	2	2 2	2	2	2	2	2	2	1
346	monika	17	2	1	5	4 1	4	3	1	. 2	2	1	14	1	1	3	2	4	1	2	2 2	2	2	2	1	1	2	2 2	2	2	1 2	2 2	2 1	4	3	1	2	1 1	2	99	99	2	2 2	2	2	2	2	2	2	1
347	aswini	14	2	1 -	4	4 1	2	1	1	1	2	1	11	1	2	2	2	4	1	2	3 2	2	2	2	1	1	3 2	2 1	1	2	2 2	2 2	2 1	5	3	1	2	1 1	2	2	99	2	2 2	2	2	2	2	2	2	1
348	lathika	13	2	1	3	4 1	2	2	1	. 1	1	1	11	2	2	2	2	4	1	2	3 2	2	2	2	1	1	3 2	2 2	2	2	1 2	2 2	2 1	5	3	1	2	1 1	. 1	2	4	2	2 2	2	2	2	2	2	2	1
349	cynthia	17	2	1 :	5	3 3	4	1	1	. 2	1	1	13	1	1	2	2	4	1	2	3 2	2	2	3	2	1	2	2 2	2	1	2 2	2 2	2 1	2	3	1	2	2 2	2	99	99	1	1 2	2	2	2	2	2	2	2
350	sharon	19	2	1	5	4 3	3	1	1	. 2	1	1	14	2	99	3	1	1	1	2	5 2	2	2	3	2	4	3	2 2	2	2	2	2 2	2 1	4	3	1	2	1 1	1	4	4	1	1 2	2	2	2	2	2	2	2
351	angeline	16	2	1	5	6 3	3	1	1	. 2	1	1	14	1	2	2	1	1	1	2	5 1	1	2	2	2	1	2	2 2	2	2	1 2	2 2	2 1	4	3	1	2	1	2	99	99	1	1 2	2	2	2	2	2	2	2

352	faaliha	14	2	1 4	4	2	2	1	3	2	1	1	12	1	2	2	1	4	1 2	2 3	3 2	2	2	3 2	2 1	3	2	2	2	1 2	2	2	1	5 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	2 2	1
353	hamidha	18	2	1 5	5	3	3	1	3	2	1	1	13	1	2	2	2	1	1 2	2 4	4 1	1	2	2 2	2 1	2	2	2	2	1 1	2	2	1	4 3	1	2	1	1 2	99	99	1	2	2	2	2	2 2	2 2	2
354	nisha	14	2	1 4	. 5	1	3	2	1	1	1	1	13	1	2	2	6	3	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	2 1	2	2	1	5 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1	1
355	priyanka	14	2	1 4	4	1	1	2	1	1	1	1	10	1	4	2	1	1	1 2	2 5	5 1	1	2	2	2 1	2	2	2	2	2 1	2	2	1	3 4	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1	2
356	yamuna	17	2	1 5	4	1	1	3	1	1	1	1	13	1	4	2	2	1	1 2	2 4	4 1	1	2	2 2	2 1	2	2	2	2	2 1	. 2	2	1	3 4	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1	2
357	ramya	19	2	1 5	5	1	5	2	1	2	1	1	14	1	2	2	6	4	1 2	2 3	3 1	1	1	0	1 1	2	2	2	2	2 1	. 2	2	1	5 3	1	2	1	1 1	4	4	2	2	2	2	1	1 1	1 2	1
358	kiruba	19	2	1 5	2	1	3	2	2	2	1	1	14	1	2	2	2	2	1 2	2 3	3 1	1	1	0	1 1	2	2	2	2	2 1	2	1	1	3 4	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1 2	1
359	deepa	17	2	1 5	1	1	4	2	1	2	2	1	13	1	1	2	2	4	1 3	3 2	2 2	2	2	3 2	2 1	2	2	2	2	1 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1 2	2
360	muthulaks hmi	18	2	1 5	2	1	5	1	3	1	2	1	13	1	2	2	1	1	1 2	2 5	5 1	1	2	2	2 1	2	2	2	2	2 1	2	2	1	4 3	1	2	1	1 2	99	99	2	2	1	2	1	1 1	1 2	2
361	lakshmi prabha	16	2	1 5	2	1	5	2	3	1	2	1	12	1	4	2	2	3	1 2	2 3	3 2	2	2	3 2	2 4	2	2	2	2	2 2	2	2	1	3 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1 2	2
362	kavipriya	15	2	1 4	1	1	4	2	1	2	1	1	13	1	2	2	6	4	1 2	2 3	3 2	2	2	3 2	2 1	2	2	2	2	2 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	1	2	1	1 1	1 2	2
363	aswathi	15	2	1 4	6	1	3	2	3	2	1	1	13	1	2	2	6	4	1 2	2 3	3 2	2	2	3 2	2 1	2	2	2	2	2 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	1	2	1	1 1	1 2	1
364	thenmozhi	14	2	1 4	4	1	3	1	1	2	1	1	12	1	2	2	6	4	1 2	2 3	3 2	2	1	1	1 1	2	2	2	2	2 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	1	2	1	1 1	1 2	1
365	anupama	19	2	1 5	1	1	2	2	1	2	1	1	12	1	2	2	6	3	1 2	2 3	3 1	1	1	0	1 1	2	2	2	2	2 1	. 2	2	1	1 3	1	2	2	2 2	99	99	2	2	1	2	1	1 1	1 2	1
366	katheeja banu	15	2	1 4	5	2	3	2	2	2	1	1	13	2	2	2	3	1	2 2	2 3	3 2	2	1	1	1 4	2	2	2	2	2 2	2	2	1	2 4	1	2	2	2 2	99	99	2	2	2	2	2	2 2	2 2	1
367	rakshitha	15	2	1 4	4	1	2	1	1	2	1	1	11	1	1	2	2	2	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	2 1	1	2	1	4 3	1	1	2	2 2	99	99	1	2	2	2	2	2 2	2 2	1
368	christina	15	2	1 4	5	3	1	1	1	2	1	1	13	2	99	1	1	1	1 2	2 4	4 2	2	2	2	1 1	2	2	2	2	1 2	2	2	1	4 3	1	1	2	2 2	99	99	1	2	2	2	2	2 2	2 2	1
369	devibala	14	2	1 4	6	1	2	1	2	2	1	1	11	2	99	2	2	4	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	1 1	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	2 2	2
370	sweetline	14	2	1 4	3	3	4	2	1	2	1	1	12	1	1	2	2	4	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	1 1	2	2	1	4 3	1	1	2	2 2	99	99	1	2	2	2	2	2 2	2 2	2
371	ragavi	12	2	1 3	5	1	2	2	1	2	1	1	11	1	3	1	2	3	5 2	2 1	1 2	2	1	1	1 1	3	2	2	2	2 1	2	2	1	5 3	1	1	2	2 2	99	99	1	2	1	2	2	2 2	2 2	1
372	reshma	19	2	1 5	6	1	2	1	2	2	1	1	11	1	2	2	2	1 :	5 2	2 3	3 2	2	2	2	1 1	2	2	2	2	2 1	2	2	1	4 3	1	2	1	1 2	99	99	2	1	2	2	2	2 2	2 2	1
373	lydia	15	2	1 4	4	3	2	2	1	2	1	1	11	1	3	1	6	3	1 2	2 2	2 1	1	2	1	1 1	2	2	2	2	2 1	. 1	2	1	4 3	1	1	2	2 2	99	99	1	2	2	2	2	2 2	2 2	1
374	madhumal ar	14	2	1 4	4	1	4	2	2	2	1	1	12	2	99	2	1	4	1 2	2 4	4 1	1	2	1	1 1	1	2	2	2	2 2	1	2	1	2 3	1	1	2	2 2	99	99	2	2	2	1	2	1 2	2 1	1
375	janani	16	2	1 5	5	1	3	1	1	2	1	1	11	2	99	2	1	1	3 2	2 4	4 2	2	2	2	1 3	2	2	2	2	2 2	1	2	1	4 3	1	1	2	2 2	99	99	2	2	1	1	2	2 2	2 2	1
376	swetha	15	2	1 4	6	1	1	2	1	2	1	1	13	2	99	2	2	4	1 2	2 3	3 2	2	2	3 2	2 1	2	2	2	2	2 1	2	2	1	4 3	1	1	2	2 2	99	99	2	2	2	2	1	2 1	. 1	1
377	akshaya	15	2	1 4	7	1	1	2	1	2	1	1	14	1	2	2	2	1	1 2	2 4	1 2	2	1	1	1 1	2	2	2	2	2 1	2	2	1	3 4	1	1	2	2 2	99	99	2	2	2	2	2	2 2	2 2	1
378	mohana priya	14	2	1 4	5	1	4	1	2	2	1	1	11	2	99	2	1	4	1 2	2 4	4 1	1	2	1	1 1	1	2	2	2	2 1	2	2	1	1 3	1	1	2	2 1	4	4	2	1		1	2	1 1	. 1	1
379	vinodhini	18	2	1 5	2	1	2	1	1	2	1	1	13	1	4	2	2	4	1 2	2 3	3 2	2	1	2 2	2 1	2	2	2	2	2 1	. 2	2	1	2 3	1	2	2	2 2	99	99	2	2	2	2	1	1 1	1 2	2
380	bhuvanand hini	16	2	1 5	4	1	2	2	3	2	1	1	13	1	2	2	2	1	1 2	2 4	1 2	2	2	3 2	2 1	2	2	2	2	2 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	1 2	2
381	nandhini	18	2	1 5	4	1	3	1	3	2	1	1	13	1	2	2	2	1	1 2	2 4	1 2	2	2	3 2	2 1	2	2	2	2	2 2	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	1	1 1	ι 2	2
382	nithya	19	2	1 5	1	1	3	2	2	2	2	1	13	1	1	2	2	2	1 2	2 3	3 2	2	1	1	1 1	2	2	2	2	2 1	2	2	1	2 2	1	2	2	2 2	99	99	2	2	1	2	1	1 1	. 2	1
383	pooja	18	2	1 5	2	1	3	1	1	2	2	1	10	1	2	1	1	1	2 2	2 4	4 2	2	2	2	1 4	2	2	1	1	2 2	2	2	1	3 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	2 2	2
384	shruthi	13	2	1 4	2	1	3	3	1	2	2	1	12	1	2	2	6	4	1 2	2 3	3 2	2	2	2	1 1	2	2	2	2	2 2	2	2	1	3 3	1	2	2	2 2	99	99	2	2	2	2	2	2 2	2 2	1
385	poornima	14	2	1 4	4	1	3	2	1	2	1	1	13	1	2	2	1	3	1 2	2 4	4 2	2	2	3 2	2 1	3	2	2	2	1 1	2	2	1	4 3	1	2	1	1 2	99	99	2	2	2	2	2	2 2	2 2	2
386	rebecca	19	2	1 5	4	3	3	1	1	1	1	1	13	1	1	1	1	1	2 1	1 2	2 2	2	2	2	1 4	2	2	1	1	1 2	2	2	1	3 3	1	2	1	1 2	99	99	1	2	2	2	2	2 2	2 2	2

387	mythili	15	2	1	4	3	1	3	1	1	2	2	1	13	3	1	3	2	2	4	1	2	3	2	2	1	2	2	1	2	2	2	2	2	1 2	2	1	3	3	1	2	1	1	2	99	99	1	2	2	2 2	2 1	1	1	1	2
388	vinitha	17	2	1	5	4	1	3	2	1	2	1	1	14	. [1	2	2	2	1	3	2	2	1	1	2	1	1	4	2	2	2	2	2	1 2	2	1	4	2	1	2	1	1	2	99	99	1	2	2 2	2 2	2 1	1	1	1	2
389	archana	13	2	1	4	4	1	3	2	1	2	2	1	13	; T	1	5	2	2	1	1	3	3	2	2	2	3	2	1	3	2	2	2	2 2	2 2	2	1	3	3	1	2	1	1	2	99	99	1	2	2	1 2	2 2	2	2	2	2
390	esther	17	2	1	5	3	3	4	1	1	2	2	1	13	3	1	1	2	2	4	1	2	3	2	2	2	3	2	1	2	2	2	2	1 :	2 2	2	1	2	3	1	2	2	2	2	99	99	1	1	2 2	2 2	2 2	2	2	2	2
391	naveena	16	2	1	5	3	1	4	1	3	1	1	1	13	; T	1	1	2	2	3	1	3	2	2	2	2	3	2	1	2	2	2	2	2 2	2 2	2	1	3	3	1	2	1	1	2	99	99	1	2	2 2	2 2	2 2	1	1	2	2
392	pavithra	19	2	1	5	2	1	2	2	1	2	1	1	13	;	1	2	2	2	1	1	2	4	1	1	2	2	2	1	2	2	2	2	2	1 2	2	1	2	3	1	2	2	2	2	99	99	1	2	2	2 2	2 2	1	2	2	1
393	sathyapriy a	16	2	1	5	3	1	4	1	1	2	1	1	13	;	1	2	2	2	4	1	2	3	2	2	2	3	2	1	2	2	2	2	2 2	2 2	2	1	3	3	1	2	1	1	2	99	99	1	2	2	2 2	2 2	1	1	2	2

KEY TO MASTER CHART

Column	Variable	Label	Values
A	S.No	Serial number	In numbers
В	Name	Name	Text/string
C	Age	Age	In numbers
D	Resi	Residence	1 –Urban; 2 -Rural
E	Mari	Marital status	1 –Unmarried; 2 -Married
F	Edu	Education	3 -middle school; 4 -high school
			5 -intermediate/post high school
			diploma
G	Edu par	Education of parents	1-illiterate; 2-primary school
			3 -middle school; 4 -high school
			5 -intermediate/post high school
			diploma; 6 –graduate/post graduate
Н	Rel	Religion	1-Hindu; 2-Muslim; 3-Christian
I	ses	Socioeconomic status	1-Upper; 2-Upper middle
			3-Middle; 4-Lower middle; 5-
			Lower
J	Bi ord	Birth order	In numbers
K	fam typ	Family type	1-Nuclear family; 2-Joint family
			3-3 generation family
L	Stu pl	Study place	1-Private; 2- Government
M	toi hom	Toilet home	1-Present; 2- Absent
N	toi sch	Toilet school	1-present
0	age men	Age at menarche	In numbers
P	awareness	Awareness before	1-Yes; 2-No
		menarche	
Q	info	Source of information	1-school; 2-mother; 3-sister
			4-friends; 5-relatives; 99-not
			applicable
R	Ideal age	Ideal age at menarche	1-9to11 years; 2-12to14 years
			3-15-16 years

S	cause	Cause of menstruation	1-normal/physiological process
			2-to clean the body/remove dirty
			fluids
			3-inner heat; 4-don't know
T	source	Source of menstrual	1-Uterus; 2-Abdomen; 3-Urethra
		bleeding	4- Don't know
U	freq	Frequency of menstrual	1-once a month; 2-2to3 weeks;3-4
		cycle	to5 weeks; 4-Don't know
V	preg	Pregnancy during	1-Yes; 2-No; 3-Don't know
		menstruation	
W	know sc	Knowledge score	0 to 5
X	att mens	attitude about	1-bothersome; 2-natural
		menstruation	
Y	att restrn	Attitude about	1-Yes; 2-No
		restrictions	
Z	Att food	Attitude about food	1-Yes; 2-No
		restrictions	
AA	att sc	Attitude score	0 to 3
AB	freq pat	Frequency pattern of	1-Once a month; 2-2 to 3 weeks
		menstruation	2-4 to5 weeks; 4-Others/irregular
AC	days	Days of menstrual	In numbers
		bleeding	
AD	amt	Amount of bleeding	1-Scanty; 2-normal; 3-excess; 4-
			don't know
AE	mood	Mood swings	1-yes; 2-no
AF	hedac	Headache	1-yes; 2-no
AG	bckac	Back ache	1-yes; 2-no
AH	abdpain	Abdominal pain	1-yes; 2-no
AI	bodpn	Body pain	1-yes; 2-no
AJ	slp	Sleep disturbance	1-yes; 2-no
AK	nosym	No symptoms	1-yes; 2-no
AL	abs	Absorbent used	1-disposable napkin

AM	padch	Number of pads	In numbers
		changed	
AN	disp	Method of disposal	1-wash & dispose; 2-burying; 3-
			burning; 4-throws in dustbin; 5-
			flushing in toilet; 6-others
AO	bath	Bath daily	1-yes; 2-no
AP	geni	Genitalia wash	1-with water; 2-with water & soap
AQ	Pr sc	Practice score	1-good; 2-inadequate
AR	pd sch	Pad change at school	1-yes; 2-no
AS	absent	School absenteeism	1-yes;2-no
AT	Reas abs	Reason for absenteeism	1-lack of privacy; 2-lack of
			provision for changing; 4-
			pain/discomfort; 5-fear of stain on
			clothes
AU	No rstrn	No restrictions	1-yes; 2-no
AV	Rel rstrn	Religious restrictions	1-yes; 2-no
AW	play	Not to go/play outside	1-yes; 2-no
AX	sit	Separate sitting	1-yes; 2-no
AY	cook	Not allowed to cook	1-yes; 2-no
		before bath	
AZ	touch	Not to touch anyone	1-yes; 2-no
		before bath	
BA	kitchen	Not to enter kitchen	1-yes; 2-no
		before bath	
BB	rstrn slp	Not to sleep in usual	1-yes; 2-no
		place	
BC	othr rsn	Other restrictions	1-yes; 2-no
BD	Avd food	Avoid foods	1-yes; 2-no